



SUSTAINABLE TREE CROPS PROGRAMME (STCP)

Workshop on STCP Implementation Assessment in West Africa

4–7 September 2001, Ibadan, Nigeria

Edited by

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International Institute of Tropical Agriculture (IITA)

Martin Gilmour

Masterfoods, a Division of MARS, UK

IITA





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Preface

This publication provides an evaluation of research and development experiences from a public–private partnership: the Sustainable Tree Crops Program (STCP). This is an innovative north–south, private–public initiative by industry, producer organizations, NGO, private sector, the public sector and institutions to facilitate the improvement of smallholder agricultural systems based on tree crops in Africa. Partners are working together to improve the livelihoods of the smallholder farmer, to ensure the environmental sustainability of tree crop systems and to ensure that viable and efficient institutional and policy frameworks are in place to service the needs of the entire supply chain. The Institute of Tropical Agriculture (IITA) based at Ibadan, Nigeria is the convener center and regional host for STCP.

A series of breakthroughs in cocoa have been produced over a number of years as result of investments in research programs at the national, regional and global level. In West Africa, Côte d’Ivoire and Ghana have achieved major growth in cocoa productivity and processing of beans. STCP plans to build on of the most successful results, and take them to a further stage, adding value in doing so. Within this context, during the working period of 2000–2001, the STCP implemented several research and development activities addressing challenges to reducing transaction costs, increasing productivity, increasing the share of world prices received by farmers, and addressing the sustainability of the tree crop smallholders.

The links between research and the extent to which generated technologies can be translated into improved livelihoods assets for farmers to pursue their own goals, were assessed during an “STCP Implementation Assessment Workshop” that took place at Ibadan, Nigeria from 4 to 7 September 2001. The objective of the workshop was to evaluate the activities being implemented by STCP and assess their relevance, efficiency, and impact in sustainable productivity improvements and more efficient use of the land.

The workshop could not have been a success without the several constructive ideas of the Steering Committee of STCP and the logistic support of the International Institute of Tropical Agriculture (IITA) as a host. The editors acknowledge the hard work done by all the STCP partners in their presentations. Many thanks to Anna Tatchoum in helping with all workshop logistics. Our thanks to Tony Lass from Cadbury International Limited for reviewing the document and his valuable input. Special recognition to the laborious work of Mercedes Delgado-Roa, who, as a consultant to STCP, collated all information during the editing of the publication. Masterfoods, a Division of MARS UK Ltd., kindly contributed funds to this publication.

The STCP is developed with financial support from the United States Agency for International Development (USAID), the World Cocoa Foundation (WCF), and the American Cocoa Research Institute (ACRI).

Jose Luis Rueda and Martin Gilmour

Slough, United Kingdom,

6 June 2002

PART I

Setting the Context

1.0 The Sustainable Tree Crops Program (STCP)

The Sustainable Tree Crops Program (STCP) constitutes a coordinated and innovative effort made by farmers and producer organizations, the worldwide chocolate industry and trade, national governments, research institutes, the public sector, policymakers, donors, and development agencies to facilitate the improvement of smallholder agricultural systems based on tree crops in West Africa. With over 50% of the foreign exchange derived in West Africa coming from cocoa alone, it is clear that there are numerous groups now involved and committed to the tree crop commodities. Collectively, these groups, which typically bring different perspectives to the table, have shaped consensus around three common interests and concerns. They include (1) promoting the production and marketing of quality cocoa, (2) improving market access and income for small-scale producers, and (3) creating systems that are environmentally friendly, socially responsible, and economically sustainable.

The goal of STCP is “to improve the economic and social well being of smallholders and the environmental sustainability of tree crop systems”.

To achieve the STCP goal, a public and private sector partnership was created—the STCP development alliance—to provide stakeholders with an organizational framework and policy environment to improve the performance and efficiency of the system. Productivity of tree crop farms and enterprises is being raised, with emphasis on the rehabilitation and reclamation of deforested lands. Efficiency in the marketing chain is being improved so that it delivers fair prices to farmers and quality products to end-users. Only by lowering production and marketing costs will tree crops remain competitive and profitable for African farmers on world markets. Achieving this and at the same time improving the state of natural resources, including biodiversity, land, soil, and water is the formidable task facing the STCP. On the social and labor front, STCP is working to prevent and eliminate the worst forms of child labor, thereby improving standards on farms and in communities.

If successful, the outcome of these efforts will be a more sustainable global economy for the focal tree crop systems, characterized by: increased rural incomes; reduced risk and greater stability in the supply of quality products to end users; increased demand for and use of tree crop products; better working conditions on farms; and an improved status of environmental resources for current and future generations of Africans.

The interest groups for the types of efforts and products being focused on include farmers, traders, manufacturers, financial institutions, support service groups, and policymakers. With over 50% of the foreign exchange derived from agriculture exports in West and Central Africa coming from these crops, it is clear that there are numerous groups now involved and committed to these commodities.

STCP is a program that brings together all of these stakeholders and enables them to collaborate. To do this efficiently, a results framework with five component areas was adopted. The components are: (1) strengthening community-focused groups, (2) technology dissemination and research, (3) trade and information systems development, (4) policy analysis and implementation, and (5) labor and social systems improvement.

The general approach taken within each component is to build on the existing efforts and activities of relevant stakeholder groups, to add value to them, and to coordinate future collaborations. The primary tree crops targeted by STCP are cocoa, coffee, and cashew. Additional tree crops may be considered within the context of diversification of cocoa, coffee, or cashew production systems.

A regional program has been implemented which will enhance the synergies to be gained by working across institutions and countries to successfully develop sustainable tree crop production. The four largest African cocoa producers (Cameroon, Côte d'Ivoire, Ghana, and Nigeria) are included in the program and account for approximately two-thirds of total world production. The fifth member of the program is Guinea whose diversified agricultural economy includes cocoa, cashew, and robusta coffee as major subsectors. Furthermore, an integrated and holistic approach is taken within STCP to link developments in research, technology delivery, market systems, information systems, policy change, and community or producer focused services.

Currently, a series of STCP pilot projects are in the start-up phase in West Africa; three pilot projects are located in Côte d'Ivoire, and one in each of the other four countries (Cameroon, Ghana, Guinea, and Nigeria). The objective of these pilot activities is to compare, test, and validate different approaches and interventions to develop sustainable and integrated cocoa production systems, and to concurrently address child labor concerns in a coherent and systematic method. The ultimate goal of these pilot activities is improve the rural livelihood of cocoa producers in West Africa by improving their ability to respond to the demands of global markets.

To support the pilot activities, several "cross-cutting" regional projects have been developed in the following thematic areas: child labor; technology delivery, research and impact; and trade and information systems. These projects are being developed by organizations with the necessary expertise and capabilities.

Finally, a regional program management structure has been developed to support and link the pilot projects and regional activities. The International Institute of Tropical Agriculture (IITA) will be the regional program host; the program will be managed through the STCP Regional and National Coordination Units. The Child Labor Regional Project will be hosted and managed by the International Labor Organization (ILO) through its International Program on the Elimination of Child Labor (IPEC). The Donor Alliance Committee will ensure a broad-based, public-private partnership to support STCP; a donor liaison office is assisting with development of communication tools and material to serve the Alliance. The STCP Steering Committee, consisting of 15 members from farmers' groups, industry/trade, funding agencies, national network chairs, and the program host institution is providing general oversight to the STCP program as a whole.

2.0 General development context

Sub-Saharan Africa still has low productivity and a high percentage of poor and undernourished people, both adults and children. More than 65% of the labor force was employed in the agricultural sector in 1996, with 15% in industry and about 20% in services (ADB 1999). Some 60% are projected to be employed in agriculture by 2010. Agriculture, accounting for more than 33% of GDP and 40% of reports, remains the dominant factor in economic development in the majority of African economies. As most of the poor are dependent on the rural economy for their livelihoods, the performance of the agricultural sector has far reaching implications for food security, poverty reduction, and income generation. However, even by 2020, sub-Saharan Africa's per capita income is projected to be an average still less than a dollar a day; poverty of this magnitude will condemn many people in this region to food insecurity. This will especially affect children. It is projected that sub-Saharan Africa will be the only developing world region where the number of malnourished children will increase, and will reach some 40 million by 2020.¹

Tree crops are important in African agriculture and contribute significantly to the income of farmers. Tree crop systems can also play a critical role in sustaining biodiversity in sound management of natural resources and have an excellent potential to improve the income of households and to provide additional pathways for the diversification and intensification of food crops systems.

Tree crops have indeed a potential to be a major force for the reduction of poverty in sub-Saharan Africa. There are, however, important policy issues to be considered that can unfold that potential, such as to improve the existing input-hostile policy environment, and create in general a conducive policy environment for sustainable production systems. Important policy issues that need to be addressed are also concerned with reduced taxation of exports, providing reliable currency for saving during booms, unlocking the collateral value of tree crops, and branding and price discrimination.²

The agricultural sector, in which 65% of the population is involved, therefore, must become one of the foundations of economic growth of sub-Saharan Africa. This must be catalyzed by the need to satisfy a growing commercial demand for higher quality and reliable supply of agricultural products at prices competitive in the world markets. STCP can indeed provide solutions and spread technologies for poor farmers to contribute to agricultural growth in Africa.

3.0 Cocoa and chocolate

Cocoa beans, from which chocolate is made, are the seeds of the cocoa tree scientifically known as *Theobroma cacao*. The names cocoa and chocolate are derived from the Olmec and Mayan languages, whose populations consumed it as a beverage more than 2000 years ago. Even now, cocoa is a major ingredient in several Mexican traditional foods, especially in "mole".³

¹P. Hazell and L. Haddad. Agricultural research and poverty reduction. IFPRI Discussion Paper 34. 2001.

²P. Collier. The future of perennial crops. International Conference on the Future of Perennial Crops. November 2001, Yamoussoukro, Côte d'Ivoire.

³The history of chocolate. CMA (www.candyusa.org).

Cocoa beans are grown in a range of 20 degrees north or south of the equator and West Africa, in the 1990s, had a 70% share of world cocoa production. The cashew tree is largely restricted to latitudes 15° north and south. West Africa produces some 100 000 tonnes of cashew nuts per year.

The four largest African cocoa producers are included in the program: Cameroon, Côte d'Ivoire, Ghana, and Nigeria. The fifth member of the program is Guinea whose diversified agricultural economy includes cocoa, cashew, and robusta coffee.

According to data from the World Cocoa Foundation (www.acri-cocoa.org), nearly six million farmers grow more than 85% of the world's cocoa and the average land size for these farmers is from 2.5–5 acres with about 1000 cocoa trees. The world consumes some three million tonnes of cocoa beans annually and one third of the world's cocoa is lost to pest or disease every day. The globalization of this market is extensive, involving countries both in the north and the south, developed and developing countries, and poor and rich populations (the former being the producers and the latter being consumers).

Major characteristics of global production

- It is highly concentrated geographically (West Africa's share of world cocoa production is 70%).
- Any significant expansion is limited to the three largest producers (resulting in an increased risk to global supply).
- An increased risk of cocoa pest and disease and a large variation in yield/ha.

Specific characteristics of cocoa production in West Africa

- Ninety-five percent of produce comes from smallholders.
- Low input.
- Tree stock is typically old.
- Growers are over 50 years old.
- The share of global cocoa production has increased since the 1990s when Brazilian production started to decline and Asian production stabilized.

The consumption trend shows rapid growth due to rising incomes in developing countries and populations, an emerging market in countries which have recently had crises but are potential buyers in the long term, the Asiatic demand is increasing (mostly Chinese and Indian). In the traditional market of North America and Western Europe, the demand for better quality is increasing.

Urban population is increasing and production will need to increase to meet urban demand. The cocoa market could profit from this situation as new possibilities arise to enter a niche market.

The direct role of governments in productive activities (agricultural production, processing, and trade) is far less prominent today than it was a decade ago and privatization of agricultural processing and marketing agencies is widespread. Where

economies and trade are more open now, their exposure to international price fluctuations is also increasing, especially when economies are not highly diversified. Liberalization of markets in some cases has left farmers without credit, and heavily dependent on loans in a form of inputs from buyers, which increases their production costs.

Finally, the trend of cocoa prices is the result of the balance or imbalance between global supply and demand, but their typical characteristic is the large share of the price that is absorbed in the chain of the process (such as inflated transport costs, low economies of scale, lack of information, high risk, excessive physical losses, taxes, too many intermediaries).

Concerning cashew production, West Africa produces over 100 000 tonnes yearly with Guinea-Bissau and Côte d'Ivoire the main producers. Both countries together with Nigeria have some processing capabilities.

Insect pest damage is of greater significance than disease but the likelihood of major disease problems is increasing for the cashew-expanded areas. Bush fires and the subsequent damage to cashew crops is one of the major constraints to cashew production (both data according West Africa Regional Cashew Survey provided by Biohybrids for STCP). The prices are high at the moment (for Africa the referential price is the Indian price), processing the raw cashew nut is difficult as are training conditions but expanding demand could be linked to increasing Africa's output.

4.0 Context of markets for tree crops: the case of cocoa

Cocoa is one of the major agricultural commodities traded on international markets. Sub-Saharan Africa is currently the world's leading cocoa producing region accounting for about 70% of the world's cocoa supply. The principal consuming areas, on the other hand, are the industrialized countries with the largest markets being in Western Europe and North America.

The cocoa market is one of the most volatile among basic tropical commodities. This is attributable, in part, to the long (three to seven years) delay between planting and harvesting of commercially significant returns, and also to the impact of climatic changes and the effects of disease on yields. In contrast, cocoa consumption has evolved more predictably. Changes in production have, therefore, had a direct and significant impact on cocoa bean stocks. The resulting changes in the stocks-to-grindings ratio, the key determinant of the price level, have led to wide fluctuations in price levels, which have tended to reinforce the boom-bust cycles on the world cocoa market. Demand for cocoa as input into the chain can be derived in three ways. The most proper way would be to derive demand for cocoa from developments in intermediate sectors, such as the production of cocoa butter. Alternatively, one may derive demand for cocoa directly from demand for chocolate products, especially for those countries with a large chocolate industry. Or one may even derive demand for cocoa directly from income and population.

The main determinant of demand for cocoa is demand for chocolate. Demand for chocolate can be expressed in many ways. It may be meant to indicate the demand for the products containing cocoa, or just for chocolate confectionery, or, within the latter group, the demand for specific chocolate products only. Or it is sometimes used to indicate the demand for the pure chocolate that is contained in many products, or the demand for the cocoa that is contained in the products that are consumed. A common problem in many descriptions of the chocolate market is that a clear designation of what constitutes "chocolate" is not given. Currently, 2.7 million tonnes of beans are used in manufacturing 3.5 million tonnes of chocolate, which is used in 5 million tonnes of chocolate products. This latter amount excludes the use of cocoa powder in sugar

confectionery and, for example, chocolate milk. On average, therefore, the ratio of cocoa consumption to chocolate consumption is about 0.77, while the ratio of chocolate-to-chocolate products is around 0.70. The various stages of growing, processing, and manufacturing are interconnected by markets and trade. Processing of cocoa beans takes place predominantly in the consuming countries, but this situation is changing. Grindings in nonproducing countries have not risen very much over the past twenty years, whereas those in Côte d'Ivoire, among others, have increased substantially.¹

The role of Africa, as exporter not only of cocoa beans but also of cocoa paste and other cocoa products, is clear. Net exports of cocoa products are on the increase, particularly in Côte d'Ivoire. The dominant net exporter of final cocoa products (butter and powder) is The Netherlands. Belgium, Ireland, and Switzerland are also important net exporters. No other developed countries have significant net export positions.

There are at least three reasons why producing countries still account for only a small share of world trade in final products. Firstly, tariff escalation in the main importing regions discourages processing in developing countries. Secondly, a few large multinational firms dominate the market for final products. Their competition imposes strong requirements on the flexibility and technology of the marketing departments of these firms, favoring a location in more developed countries. A third explanation for the prevailing regional distribution of the production of final products is simply the high transport and storage costs for final products, largely due to climatic circumstances in the cocoa producing countries (Burger and Smit 2001).

Consumption of cocoa is calculated by ICCO as grindings of cocoa beans plus net imports of cocoa products and of chocolate and chocolate products in beans equivalent.

5.0 Overview of program activities: areas and countries (presentation by Dr Jose Luis Rueda)

Each activity is identified with a lead institution, which is responsible for deliverables. An activity manager is charged with activity implementation. Each area of the program develops activities focused on achieving its own objectives and purposes.

Grower and business support services

The G&BSS component has as its objective the creation of strong farmer associations and viable marketing businesses. The proposal of this program component is to provide smallholder farmers in the region with an integrated package of services, which will:

- increase their knowledge of crop production techniques and pest and disease control
- improve their management of natural resources
- ensure socially responsible cocoa production
- provide them with greater access to training, extension, finance, markets, and information
- facilitate the formation of farmer-owned businesses.

¹K. Burger and H. Smit. Economic growth and demand for commodities-natural rubber and cocoa. International Conference on The Future of Tree Crops. November 2001, Yamoussoukro, Côte d'Ivoire.

Policy change and implementation

The objective of this program component is to identify and promote policy suitable to provide adequate incentives for development paths that are sound and contribute to sustainable development. Activities will be implemented through collaborative cross-country efforts that will build linkages between ongoing country-level efforts, as well as public-private partnerships to address tree crop policy issues.

The activities will place less emphasis on traditional policy analysis and focus more on promoting pilot efforts that can be jointly implemented by public and private groups to gain practical experience and knowledge about how to address priority policy issues. Need to support the development of national policies and to introduce interventions that affect policy. The main focal areas for attention and support include:

- incentives for smallholder adoption of sustainable systems
- improving the economic efficiency of development resources
- an environmental certification and reward system
- enhancing market competition and efficient trading mechanisms and financial policies.

Market and information systems development

This component provides access to smallholders about the types of markets and information systems.

The activities will help smallholder farmers develop the following skills:

- Making economic decisions about product quality.
- Developing market premiums based on grades, standards, and product certification.
- Fostering access to and use of market environmental and technical information.
- Learning how to develop and use tools to benefit from sustainable production and marketing strategies.

Research and technology transfer

The goal of the research and technology transfer component is to improve the well being of smallholder farmers and the sustainability of production through the development and transfer of technologies for sustainable tree crops systems that

increase productivity, generate income and improve the natural resource base.

The activities will be focused on developing multi-institutional partnerships and collaborative arrangements with farmer organizations and on delivering the technology and skills required to work in the following initial areas of intervention:

- Diagnosis of constraints/opportunities and impact of tree crop systems.
- Germplasm improvement and multiplication.
- Integrated pest and disease management.
- Rehabilitation of existing tree crop plantations.
- Establishment of tree crops of deforested land.
- Improved postharvest management.
- Information and knowledge sharing and technology dissemination and adoption.

Activities are implemented in the five countries and several activities will be completed at a regional level, facilitating greater efficiencies at the national level and creating a framework for sharing of knowledge and technology.

6.0 STCP highlights at national and regional level (presentation by Dr Jose Luis Rueda)

National level

Cameroon

STCP established over 300 sales points in the central and southern provinces where farmer organizations, previously trained by STCP in business planning, marketing, and accounting principles, traded approximately 50% of the total cocoa output. Auctions were carried out at the STCP stands, and grouped farmers were able to obtain a price between 10–20% more per kilogram when compared to isolated producers.

Producer associations from Cameroon received support from the United States Geological Survey (USGS) and the International Institute of Tropical Agriculture (IITA) to develop GIS-supported information systems for tree crop production and marketing. This will provide information to potential buyers concerning production practices, and increase the transparency of the cocoa systems. Additional gains will be in building the capacity of producer organizations and enhanced environmental monitoring.

Nigeria

Farmers in Ondo State, Nigeria, with assistance from the National Network of STCP, formed their own producer association named Tonikoko, which means “owners of cocoa”. For the first time since cocoa market liberalization in Nigeria, farmers came together to address issues such as product quality and the negotiation of prices. Likewise, farmers opened bank accounts and requested that payments from buyers be deposited there. This is the first step towards building savings to develop their own financial mechanisms, and for future credit availability.

Guinea

Cashew production in Guinea Conakry is a major source of income to smallholders, who usually work in isolation. The national network of STCP, led by SPCIA, has helped cashew producers to develop farmer organizations. After just one year, 60% of the farmers are working in association. Key gains from working in association include:

- A more effective technology dissemination process.
- New postharvest practices have been adopted to increase product quality.
- Farmers are reducing costs by producing large amounts of planting materials.
- Rehabilitation of old cashew smallholdings is taking place at less cost.
- Grouped farmers were able to increase their revenue by 15% compared to isolated farmers.

Côte d’Ivoire

Over 40% of the world cocoa outputs are produced in Côte d’Ivoire. Research funded by STCP resulted in refined methods for in-vitro multiplication of cocoa. Plants from in-vitro laboratories are now in nurseries, and ready to be sent to farmers. The massive use of this propagation method will be instrumental in increasing the availability of

quality planting materials in all participating countries. Training sessions conducted by Ivorian scientists were held in Nigeria, Cameroon, and Ghana.

Farmers in Agboville, in the east of the Country, obtained support from STCP to improve the management of their major association, the SCABO Cooperative. Some 90 farmer/trainers are now sharing their knowledge in quality control with their associates. In addition, their links to STCP gave SCABO price information from the London exchange. Knowledge sharing through STCP has allowed them to improve their price negotiations with purchasers and judge the best times to make their sales. A larger share of the export price is now in the hands of the smallholders.

Regional level

Farmer baseline surveys of tree crop systems

Data on production as well as socioeconomic elements, particularly issues related to child labor in cocoa smallholdings, is being addressed in the surveys taking place in all STCP participating countries. Data obtained will assist policy makers to implement options for the overall sustainability of the cocoa sector, and to improve the well being of populations dependent on cocoa production.

Regional coordination assisting national networks

National networks have been established in all five participating countries. The regional coordination unit, established through the financial support of the American Cocoa Research Institute (CMA/ACRI), has conducted a series of country visits and activities to support the development of the national networks. This has resulted in strengthened STCP stakeholders in all countries, has facilitated concerted actions for problem-solving activities, and has built strategic alliances. All these are facilitating technology adaptation and adjustment to client needs, as well as exploring ways in which policy options can be developed to stimulate growth in the cocoa sector.

PART II

STCP Implementation Assessment Workshop

1.0 The STCP implementation assessment workshop

The workshop was held in Ibadan, Nigeria, from 4–7 September 2001. The participants included delegates from West Africa as well as from other participating countries outside the region. Representatives from industry, donors, STCP collaborators, and national and regional network partners were also present.

The objectives of the STCP Implementation Assessment Workshop were:

- Assessment of activities: progress and output, including constraints during the implementation process.
- Gaps identification in the roles required for each of the partners to facilitate the sustainable systems, and to identify priority areas for research, human resource development, and capacity building.
- Discuss problems, limitations, and perspectives.
- Discussion over future direction in all areas.
- Pilot projects: presentation of a framework for the pilot projects and the next step towards developing proposals.
- Introduce the work on child labor issues in cocoa.

The four days of the Implementation Assessment Workshop were divided between work group sessions and plenary sessions.

Work sessions: Grower Business Support and Services, Research and Technology Transfer, Market Information Systems, Policy Session.

Plenary sessions: Standards of Sustainability, Information and Communications, Future Direction of the STCP, Presentation of Pilot Frameworks, National Networks. A special plenary session was devoted to Child Trafficking and Labor.

A closing session was organized to develop concluding remarks.

PART III

Presentations

1.0 Grower business support and services session

Smallholders are the backbone of cocoa economies in West Africa, but their production systems must become more productive and diversified if further competitiveness of the cocoa sector is to be achieved. However, given the small size of the cocoa farms and the physical dispersion of producers, their capacity to pursue innovations is limited.

Besides access to modern technologies, farmers in West Africa need to acquire business planning, management, and marketing skills. The challenge is to develop farmer organizations, which can effectively provide business services to smallholder members. This must be done taking into consideration that different groups have different expectations for raising their social standards. The key issue remains how marketing should be improved to reduce the chain, ensure that farmers finance their harvests, increase their real incomes, and have the adequate services (transport, storage, etc.) to move cocoa quickly and cost effectively from farm to ports.

The following activities will offer the different methods available to give the help that farmers need:

- training in smallholder agribusiness enterprise
- information systems for management
- managing quality supplies
- the establishment of a viable farmer organization
- access to credit and finance (a must to take full advantage of innovations)
- improvement in logistics
- equipping farmers to better deal with buyers
- farmers introducing their own traceability schemes
- support to handle diversification to other crops
- confidence building
- strong links with the activities on market information systems component.

The progress achieved in “Improving management practices of smallholders”; “Develop information systems for improved management practices”; “Improve the ability of smallholder producers to compete in markets”; “Establishment of a pilot farmer ownership model (FOM)” and “Study and possible solutions to access to finance and credit for tree crop farmers” are presented in activities 1–9 of this section.

The main achievements obtained by STCP in this component are:

- Effective extension supports have been given through a program of village business promoters (VBPs) with the training of 36 farmers in Cameroon assisted by ACDI/VOCA. They are trained in smallholder agribusiness enterprise (planning, transparency, management and accounting), characterization on farms and existing production systems (to collect baseline data from farms), and closer detail of case studies of agribusiness.

- An information system to management services has been achieved with the introduction of two pilot cooperatives in Côte d'Ivoire: accounting software and training provided for users of the software. This activity was run by SOCODEVI.
- The necessary quality control equipment was acquired and training in quality control provided to achieve product quality improvement at the level of both producers and cooperatives. This activity was run by SOCODEVI in two pilot cooperatives in Côte d'Ivoire. Confidence has been built to the extent that purchasers now use the quality control assessment from the cooperatives as support payment documents.
- EfDI provided assistance to implement Farmer Ownership Model (FOM) in Nigeria to improve farmer income and access to markets. The first step was to form the Tonikoko Farmers' Societies and the second was the establishment of the Tonikoko Farmers' Union. The last step will be setting up the Tonikoko Trading Company.
- The Finance & Credit Study Report and Draft of Constraints and Solution to Access to Finance and Credit for Tree Crop Farmers were ready.

The main constraints reported were problems with communications (roads are difficult, especially in torrential rain, and telephones and radio communication are nonexistent in several places) and lack of funds for increasing extension activities.

Identifying special donors for the rural economic infrastructure (transport, communications, extension services, and public services), which directly affects the rural sector's productivity and the rural population's quality of life, could be a way around these problems. Strengthening links with other potential partners (NGOs, donors, etc. who work in the same area) could profit their own installations, communications, and investment in the zone.

Activity 1. Improve management practices of the smallholder

Person in charge. Mr J. Mbarga Force

Summary. Development can only be sustainable if carried out through local organizations composed and controlled by the rural poor. The emphasis of the Activity is that farmers acquire business planning, management and marketing skills to develop smallholders' agribusiness enterprises. An effective extension support is provided through a program of village business promoters (VBPs) assisting in farmer organizations and the development of smallholder agribusiness enterprises. Farmers, both men and women, should be fully involved in extension. This is the most cost-effective way of reaching thousands of producers.

Candidates for becoming a VBP—and it is ensured that some of the candidates are women—are trained in extension methods and various methods of management, planning, quality control, and transparency. The VBPs are then selected on a competitive basis. They are assisted and evaluated by technical assistance advisory committees (TAACs), and are provided with ongoing training and oversight. The TAACs help set the agenda, have supervisory powers, and participate in evaluations of the performance of extension agents. As farmer groups become established, they will begin to assume a proportion of the cost of extension services, so that, over four to five years, the program would be self-financing.

Progress. In Cameroon, 36 farmers have been given basic training in smallholder agribusiness enterprise. Training in characterization of farms and existing production systems followed this, in order to collect baseline data from farms, to help smallholders produce organic cocoa so as to improve their income. The third stage of training looked in closer detail at case studies of agribusinesses.

Constraints. Communications, monitoring activities in the field, and ways of implementing the extension system were major problems. Lack of funds prevents other organizations joining the network.

Future work. Bringing the smallholder tree crops farmers into direct contact with exporters and business, assuring product quality through to the buyer, and bringing viable prices to the farmer.

The establishment of an effective communication system, providing information on prices and potential national and international buyers; collecting data on quantities marketed, ecological production systems, and calls for bids; exchanging information between farmer organizations on prices in various local markets on tree crops, and acquisition, user costs, and maintenance of computer and communications equipment; the posting of a website. Sensitization and orientation on cocoa product quality, to improve negotiating power.

Marketing, involving training in quality control, the construction of farm gate warehouses, negotiations with partners (price setting, contracts, etc.); and market organization (collection, quality checking, payment for removal or storage of product, etc.).

Improved production system: training in vegetative multiplication, cropping practices, establishment of a quality plants distribution system, and of chemicals supply system.

Support for farmer organizations and plantation management system: training in accounting, the development of strategic plans and agrobusiness enterprise plans, and their implementation; training in monitoring and evaluation; external mid-term evaluation by ACDI-VOCA of the level of ownership of the agribusiness system by the farmers.

Budget. US\$45 000

Start date. 4 January 2001

Country. Cameroon

Activity 2. Develop an information system for improved management practices

Person in charge. Mr Maxime Prud'Homme, SOCODEVI

Summary. Information systems for farmers involve multiple objectives: sustainability, productivity, and equity. The project is intended to establish an information system for the management of services to members to allow the cooperatives to: manage their organization; manage quality supplies; and to improve product quality at the farm and at the cooperative by putting premium on good quality beans and improving quality control within cooperatives.

The management information system will then be easier to introduce into other cooperatives in Côte d'Ivoire with the same needs, as will some elements of the system in the other four STCP countries.

Progress. Accounting software has been introduced to the two pilot cooperatives in Côte d'Ivoire, based on their needs, and training provided for users of the software.

Future work. Three cooperatives will receive the same support at the pilot cooperatives in 2000-2001: these activities are still at the experimental stage, but enough progress has been made for lessons to be learned for their implementation in other cooperatives. The management software will be installed in three other cooperatives currently supported by SOCODEVI; for quality control, needs for equipment will be identified and met; premises will be prepared for the quality control unit; information will be provided on cocoa quality standards; a training and information program on cocoa quality standards will be conducted.

Budget. 40 000

Start date. 24 November 2000

Country. Côte d'Ivoire

Activity 3. Improve the ability of smallholder producers to compete in markets

Person in charge. Mr Maxime Prud'Homme, SOCODEVI

Summary. This activity will make it possible to test a management and quality improvement model before putting it into wider use in Côte d'Ivoire and the other STCP countries. This will help to improve communications between industry, cooperatives, and the producers on matters of quality. Sensitization of the members of the cooperatives is a good way of improving the dissemination of quality requirements. Any lessons that may be learned from the activity can also be applied to coffee and other tree crops covered by STCP and four other target countries.

Progress. A visit was made to a similar organization working on producing quality cocoa; a communications strategy developed; the necessary quality control equipment acquired; training in quality control provided; and a training document produced.

Future work. Experimental design and implementation of a cocoa "traceability" mechanism, in order to assure clear identification of the origin of the product at factory level (identity of producer, information on the plantation, production conditions, etc.).

The management software will be installed in three other cooperatives currently supported by SOCODEVI; for quality control, needs for equipment will be identified and met; premises will be prepared for the quality control unit; information will be provided on cocoa quality standards; a training and information program on cocoa quality standards will be conducted.

Budget. US\$50 000

Start date. 24 November 2000

Country. Côte d'Ivoire

Activity 4. Establishment of a pilot farmer ownership model (FOM)

Person in charge. Dr C. Akinola, EfDI

Summary. This activity tries to establish viable farmer organizations through to finding markets at higher prices for the members; provide training and technical assistance; provide a channel for farmers to meet; motivate farmers whose income can be increased if the organization is successful; provide a structure for selling directly to more reliable and profitable markets; enable training and extension services to be delivered as a subsequent development.

Progress. Key stakeholders and collaborators in the pilot area of Ondo State were identified, including the smallholder farmers, renowned cocoa farmers and traders in the state, village chiefs, local government personnel, etc. Planning meetings were held to discuss the action plan, resulting in a draft structure of operation for the Tonikoko Farmers' Association. This was then gradually implemented, through the establishment of Tonikoko Farmers' Societies, which meet regularly and have their own bank account, and then the inauguration of the Tonikoko Farmers' Union (TFU). EfDI is also providing assistance to the TFU in the current trading session, including negotiations with buyers, banks, mobilization of farmers and assembling produce, with the aim of improving the quality of cocoa beans and obtaining premium prices for the farmers.

Future work. Further provision of technical and managerial assistance to the TFU; study tour to Kuapa Koko for some members of the TFU; develop a business plan; establish a Tonikoko trading company; set up a farmer field school.

Budget. US\$65 000

Start date. 19 December 2000

Country. Nigeria

Activity 5. Study and possible solutions to access to finance and credit for tree crop farmers

Person in charge. Dr C. Akinola, EfDI

Summary. In the present situation, where smallholder farmers are locked into a poverty cycle whereby they can only generate cash for farm maintenance and working capital, an access to credit and finance is unarguably one of the major considerations in the development of sustainable cocoa production by smallholder farmers in Nigeria. The credit and finance study has the objective of considering ways and means of breaking this vice hold by the traders on the smallholder farmers, by recommending bottom-up and customer-driven financial products and support services which would allow easier access to credit and input supplies, as well as by seeking out financial institutions and ethical buyers willing to provide such facilities.

Progress. Meetings have been held between EfDI and the implementing partner to review the terms of reference and develop work schedules and an action plan. A checklist of questions was developed as reference material to guide discussions and interviews. These are constantly reviewed to meet specific requirements and target audiences.

A literature review has been conducted of available data on finance and credit, and input supplies in the cocoa subsector. Consultative meetings have been held with major stakeholders in the Nigerian cocoa industry: farmers groups, cooperatives, traders, agrochemical companies, micro-finance institutions, warehousing companies, processors, research institutions, banks and development finance institutions.

A three-part finance and credit study report has been produced, assessing the current situation and proposing an intervention model that incorporates the smallholder producer in the cocoa financing framework.

Future work. Seminar with the Nigeria STCP network, key players in the cocoa subsector in Nigeria, and financial institutions to comment on the draft report "Study of constraints and solution to access to finance and credit for tree crop farmers".

Budget. US\$5000

Start date. 19 December 2000

Country. Nigeria

Management support for cashew growers

Since 1984 Guinea has had a more liberal free market orientation because of a shift in political regimens and it has been necessary to contribute to the creation of a new agribusiness private sector capable of replacing state control. The Agence pour la Commercialisation Agricole (ACA) was created to offer marketing services, guarantee transparency, help to create an efficient organization, and to transfer knowledge. The ACA worked with STCP on the activity “Capacity creation and strengthening for producers associations”.

As in cocoa, it is necessary to develop cashew farmer organizations that effectively provide business services to their farmer members. Through these different activities, “Training of cashew cultivation”, “On-farm cashew plantation monitoring”, “Training for producers in marketing techniques” and “Capacity creation and strengthening for producers associations” the following progress was made:

- Farmers were trained in both theoretical and practical work and lead farmers were identified to extension on cashew production.
- Meetings, surveys, and workshops were conducted to train cashew extension agents.
- Training courses were conducted to increase the volume of the cashew market and lead farmers were identified to extension.
- Legal, efficient, and sustainable groups were established and those already existing were strengthened by means of a survey about cashew culture, meetings, and training.

The constraints focused on producers’ lack of information on the use of the cashew tree crop. Cashew farmers are quite isolated and the gaps in the information market (such as market prices) and the difficulties in accessing credit must be improved in order to achieve the objectives in these activities. Difficulties in communication and deficient access were other constraints found in the area. Proposals for improvements in this situation are similar to those for cocoa.

Activity 6. Training on cashew cultivation

Person in charge. Mr .A. Kane, SPCIA/Mr M. Barry, OIC

Summary. Development of the cashew framework, which has helped to assess the appropriateness of development decisions made to improve association of the cashew smallholders who usually worked in isolation. Group training courses for farmers covering cashew cultivation, and diversification could be a help in this way in creating new sources of income and spreading farming activities throughout the year.

Progress. On the basis of documentation, the above modules and training materials were developed. Training assistants were identified and trained through the training courses conducted. A total of 407 farmers were trained in 11 different centers, with both theoretical and practical work. Finally, lead farmers were identified to continue the support to other farmers.

Constraints. Ignorance of cashew, isolation of farmers, lack of selected seed, ignorance of cropping techniques, lack of credit, lack of information on real prices of cashew products. There was also a marked lack of time for the training courses, due to delays in the release of funds despite which 62% of the program was implemented in the space of a month.

Future work. Replication of pilot phase in seven regions of Guinea, capacity strengthening for farmer organizations, with support for new groups, functional literacy and management training, and initiation to obtaining credit.

Budget. US\$25 000

Start date. 1 February 2001

Country. Guinea

Activity 7. On-farm plantation monitoring-extension

Person in charge. Mr A. Kane, SPCIA

Summary. Identified and promoted appropriated technology by extension, which could contribute to improve cashew production in Guinea. Constraints for cashew production must be identified and practices for correction must be suggested to arrive at a sustainable cashew system that improves smallholders well being. Goals will be to increase the means available to SNPRV extension agents in Guinea, to promote cashew production techniques to farmers, and to expand monitoring and extension provision to all potential cashew production zones.

Progress. Meetings and surveys were conducted with 11 865 families and 1131 farmers and plantations, with an average area of 2.98 ha per farmer. Workshops were conducted on cashew production and demonstration plots established.

Constraints. Farmers' lack of knowledge of production techniques, aging plantations, inadequate supplies and cost of inputs, maintenance problems, insect and disease problems, poor planning and management, remoteness of farms.

Future work. Expand pilot activities to all potential cashew production zones; provide further advice and technologies in pilot zone. Train basic extension agents and farmers; establish demonstration plots, provide monitoring for plantations, encourage visits to successful plantations.

Budget. US\$25 000

Start date. 1 February 2001

Country. Guinea

Activity 8. Training for producers in marketing techniques

Person in charge. Mr A. Kane, SPCIA/Mr M. Barry, OIC

Summary. The specific objective in this activity will be to increase the volume of cashew market to improve the income of smallholders. Training in several items could achieve: raising the consumer's awareness of cashew; producing standard nuts which can be exported; minimizing losses through proper harvesting techniques; and improving processing, packaging, and transport to ensure best conditions for the product.

Progress. Standards established, research, and documentation conducted for the development of training modules and materials covering: dealing with the consumer, the product, and standards (harvest, postharvest, and packaging); prices; distribution; and promotion. The national language was the language of communication, and pictures were used to convey the message, which had to be represented as simply as possible. Consultants were identified as training assistants, and were first trained. The training courses were then conducted for 358 farmers in 11 centers; a further 282 were to be trained in a further eight centers. Finally, lead farmers were identified to continue the support to other farmers.

Constraints. Lack of information on use of cashew and on market trends. If the courses had been organized outside the farming season, far higher numbers of farmers would have been attracted.

Future work. Replication of pilot phase in seven regions of Guinea, capacity strengthening for farmer organizations.

Budget. US\$20 000

Start date. 30 March 2001

Country. Guinea

Activity 9. Capacity creation and strengthening for producers' associations

Person in charge. Mr A. Kane SPCIA/Ms Y. I.ima Dacosta, ACA

Summary. Producers' associations have not received adequate organizational support and this point is basic to the strategic objective of STCP. Capacity creation and strengthening for producers' associations must establish legal, efficient, and sustainable groups and cooperatives, strengthening those already existing (11) and setting up new groups (37). This work is conducted by the Agence pour la Commercialisation Agricole (ACA), whose remit is to provide appropriate marketing services to the public, ensure transparency in the market by collecting and publicizing prices, promoting the efficient ordered organization of agricultural marketing, and transferring knowledge and know-how to farmers through training. Farmers in Guinea have been attracted to cashew production by the prices paid (one sack of cashew nuts = one sack of rice) and the success of neighboring farmers in Guinea Bissau and Côte d'Ivoire.

Progress. This has been done by conducting a survey, the results of which are being processed, holding meetings (11 with 305 farmers), providing training (10 sessions with 593 farmers), and the establishment of the groups/cooperatives. The result has been 90 groups and seven associations set up. Moreover, agents from various development projects also benefited from the courses. Very few women are involved in cashew production. Therefore, only 12 took part in the training sessions.

Constraints: Delays in the provision of start-up funds; poor state of the roads in the rainy season; remoteness of some areas from the training centers.

Future work: Survey of existing farmers' groups; reorganization where necessary of existing groups, and organization of new groups; provision of management training for executive members of groups; formal recognition of groups by authorities; support for organization of farmers' unions, with a regional workshop.

Start date. 1 February 2001

Country. Guinea

2.0 Research and technology transfer session

Current global cocoa production is highly concentrated, with significant expansion limited to the world's largest producers. In West Africa two major producers, Côte d'Ivoire and Ghana, make up almost 60% of the total world output totaling nearly 1800 tonnes in 2000. Most of the production increases have occurred in these two countries, and mainly by migrant settlers. Nevertheless, the threat from cocoa pests and diseases coupled with the age of some plantations and the depletion of soil fertility, are increasingly causing significant reductions in yield/ha of cocoa. Sustainable productivity improvements of cocoa smallholdings must be attained to increase farmer incomes.

One way forward is the dissemination and adoption of production and postharvest innovations, with the emphasis on the rehabilitation of old plantations, suitable soil fertility replenishment approaches, and the reclamation of deforested lands. All these, supported by an appropriate environment policy that improves the efficiency of the tree crop sector, will contribute to reducing poverty and increase the competitiveness of cocoa.

Understanding patterns of resource-use and its implications

The purpose of this session was to evaluate the effects of farmer management in the cocoa system and the establishment of multi-species cocoa plantations on deforested land to reduce deforestation.

The initial progress in "Ecology of cocoa agroforests" (activity 10) is:

- The ecosystem integrity is potentially maintained by the cocoa smallholder farming system
- There are more uninfected cocoa pods in the treatment where fungicide is applied at the recommended rate
- Fungicides have a negative impact on earthworm casts
- In canopy gaps, decomposition rates are reduced in the case of rapidly decomposing material
- Survival of the cocoa was the same in the presence or absence of shade, and soil water and soil temperature appear more important than shade

"Cocoa agroforest establishment of deforested land" (activity 11) achieved the following status:

- Knowledge of biological and nutrient cycling aspects in establishing cocoa agroforest in *Chromolaena odorata* and *Imperata cylindrica* has been obtained.
- Establishment criteria on a range of exotic and indigenous fruit trees.
- The "Socioeconomic context of land-use change" was published and distributed.

Activity 10. Ecology of cocoa agroforests

Person in charge. Dr L. Norgrove, IITA

Summary. To know the characteristics of existing cocoa system to enable the smallholder to maintain the integrity in the ecosystem. The project is intended to conduct an ecological and economic characterization of existing systems; to examine the landscape level function of cocoa systems within a mosaic of different land uses; to establish cocoa systems in degraded land and assess the carbon stock and to examine the effects of management (shade/fungicide) on the ecosystem function and carbon and nutrient cycling. Trials are being conducted to look at: comparison of decomposition rates of plant material in secondary forest fragments, mature cocoa farms and young fallows and the effects of fungicide upon decomposition; effects of fungicide application upon pod counts and soil fauna; effects of shade tree reduction upon sustainability criteria; decomposition dynamics in canopy gaps; effects of fertilization upon decomposition rates of plant material in *Inga edulis* cocoa agroforests established on degraded land.

Progress. Some early tentative conclusions have been achieved over the fungicide use, shade and other management:

- Material placed in mature cocoa systems decomposes at a similar rate to that in forests and much faster than in fallows. This suggests that ecosystem integrity is potentially maintained by cocoa.
- There are more uninfected cocoa pods in the treatment where fungicide is applied at the recommended rate.
- Fungicide application at the recommended rate has a negative impact upon earthworm cast production. A reduced application is no different from the no-spray control.
- In canopy gaps, decomposition rates of fast material are reduced, however, slow-decomposing material is unaffected.
- Establishing agro forests on degraded land is initially a disturbance and, even two years later, the decomposition ability of the soil is impaired. Fertilizer has no effect so far.

Future work

- Assessment of the environmental and yield impacts of fungicide use, at a greater range of application rates in cocoa farms of different ages.
- Assessment of the saprophytic potential of *Phytophthora megakarya* and the use of decomposing plant residues in its control.
- Controlled experiment on the environmental and yield effects of shade regulation by selective felling of less-valuable trees within very heavily shaded cocoa farms.

Budget. US\$30 000

Start date. 8 January 2001

Country. Cameroon, Côte d'Ivoire

Activity 11. Cocoa agroforest establishment of deforested land

Person in charge. Dr S. Weise, IITA

Summary. Producer revenues across West Africa, while fluctuating more than in the past, have increased in recent years due to the market liberalization and currency devaluation as part of structural adjustment programs. Farmers are responding by establishing new plantings and by increasing the resources allocated to existing cocoa agroforests. This project proposes interventions to ensure the participation of the poor in these fundamental economic changes through the establishment of environmentally and ergonomically sustainable multistrata agroforests in short fallow lands.

The three main components of the project goal are poverty alleviation, biodiversity protection, and enhanced environmental services. The working hypothesis is that the conversion of degraded *Chromolaena odorata* and *Imperata cylindrica* fallow lands to agronomically sustainable agroforests would favorably affect each of these components.

Activities. On-farm establishment trials on degraded/deforested lands for cocoa and plantain to address the key agronomic constraints of soil nutrient management, weed and pest management, and the related issue of shade management. Farmers will select treatments from the initial set offered, on the basis of their analyses of problems, opportunities and constraints.

On-farm establishment trials on degraded/deforested lands for improved exotic and indigenous fruit trees. Improved germplasm available for testing with farmers includes avocado, mango, guava, citrus, cassamango, papaya, and oil palm.

Understanding the socioeconomic context surrounding agroforestry decision-making. To ensure appropriate and equitable interventions in cocoa agroforests, socioeconomic factors affecting decision-making and access to resources will be investigated.

Outputs

1. Agronomic knowledge on soil amendments, weed management, perennial and annual cropping associations and sequences compiled and diffused for further adaptive testing within STCP, EPHTA, and ASB consortia and by NARS. Extension materials describing successful technical options published and distributed to extension services and NGOs. Farmer field days organized with local farmer organizations active in the STCP focal areas.
2. Establishment criteria and performance for a range of exotic and indigenous fruit trees in complex agroforests determined, and best performing species selected for extension and adaptive testing in other pilot sites of West and Central Africa.
3. The socioeconomic context of land use change and assessments of poverty alleviation impacts published and distributed to agricultural researchers and policy makers for research planning and policy dialogue concerning rural development and rehabilitation of degraded land strategies.
4. Social and private returns from converting degraded lands to complex agroforests estimated and passed to policy makers involved in formulating carbon trading schemes and new planting subsidies.

Budget. US\$48 000

Start date. 1 September 2001

Country. Cameroon, Nigeria, and Côte d'Ivoire

Integrated pest and disease management

Black pod disease, caused by the fungus *P. megakarya*, is recognized as the major constraint to cocoa production in West Africa. Farmers need to spend large amounts of their income on purchasing chemicals to control the disease, with potential undesirable environmental or ecological consequences. In a recent study conducted under an IRAD/STCP agreement in Cameroon, control of the disease using biocontrol was assessed, and one biological control agent has proved to be the most effective. Trials are being conducted under farm conditions. This will contribute to improving the living conditions of smallholders, and the sustainability of the cocoa production in the region (see report herein enclosed).

The use of biological and economically sustainable control practices was the objective in “Development phase for a biopesticide for cocoa myrids” (activity 12) and “Development phase for the biological control of black pod” (activity 13) activities. A biocontrol workshop was held in Yaounde in June 2001 and a Central and West Africa Regional Biocontrol of Plant Disease working group was created.

The progresses for “Development phase for a biopesticide for cocoa mirids“ are:

- CRIG and IRAD scientists were trained at CABI Nairobi.
- Surveys were conducted in Ghana to obtain pathogens of cocoa myrids
- *Beauveria bassiana* has been isolated.
- Technique for the mass production of its spores has been established but is not yet ready for farmers.
-

In “Development phase for the biological control of black pod” the progresses are:

- A total of 788 fungal endophytes and 51 bacterial endophytes have been isolated and stored and 13 of those have been selected.
- Six promising bacterial strains were found and tested for the control of black pod caused by *P. megakarya* (Cameroon) and Biocontrol systems established for *P. megakaya* (Côte d’Ivoire).

However, similar work needs to be done on fungal Biocontrol in all STCP countries to get local isolates.

All efforts must be made to encourage the farmers to use integrated pest management approaches. IPM must be implemented in neighboring parcels. Effective innovation delivery systems are key in these new solutions. Individual cocoa farmers have difficulty in managing resources that require collective action, particularly around large-scale innovations. Collective action is especially important for the case of the management of pests and diseases. Experience in various crops has shown that there are high returns to invest in collective control of pests and diseases in large geographical areas. Preliminary yield regressions also show a highly significant effect from fungicide application in Nigeria and Cameroon. Likewise, the application of inorganic fertilizers had a positive effect on yields in Côte d’Ivoire.

The constraints were a need for laboratories in Cameroon and a vehicle. In addition, micro credit markets should be made available for farmers. Otherwise, it was noted that farmers will not be able to purchase inputs to take full advantage of the innovations.

Activity 12. Development phase for a biopesticide for cocoa myrids

Person in charge. Dr G Oduor, CABI

Summary. Cocoa pest is a great problem in cocoa production. There is an urgent need to develop sustainable alternative environmentally friendly technologies, e.g., specific entomopathogens, to minimize the damage caused by myrids pest, and increase the income of smallholder cocoa farmers. Myrids are the most important insects pests of cocoa in Ghana, causing losses of approximately 100 000 tonnes, or 25% of the crop. Currently, conventional insecticides provide the only effective control, but because of the expense and the difficulty of application farmers rarely use recommended spray programs. The insecticides used are a risk to humans and also kill nontarget and even beneficial organisms, thereby decreasing the biodiversity in the cocoa ecosystems.

To develop an effective mycoinsecticide against the two main species of cocoa mirids, *Distantiella theobroma* and *Sahlbergella singulari* is the objective of this activity, as well as providing training for scientists from CRIG, Ghana, and IRAD, Cameroon, in the use of entomopathogens in the management of cocoa myrids, and to extend ongoing research activities in Ghana to Cameroon. This work supplements ongoing collaborative research between CABI and CRIG on the 'Development of mycoinsecticide and pheromones for cocoa myrids in Ghana' funded by DFID (UK).

Progress. Training was provided in Nairobi for one scientist each from Ghana and Cameroon. Surveys were then conducted in Ghana to obtain pathogens of cocoa myrids from farms and forests in the Eastern region. Myrids were collected from some of the farms, but no pathogens were isolated. However, within the DFID-funded project, an isolate of *Beauveria bassiana* was isolated from cocoa myrids collected in Ghana. This isolate was mass produced, as were others collected from cocoa myrids in Papua New Guinea, and the spores harvested in Britain and packaged and shipped to CRIG. These were then tested for their pathogenicity. This work is to be completed in 2002, to select the best isolate, the best formulation and application methods for its use, and to assess its efficacy in the field. More work also needs to be conducted in Cameroon to supplement that in Ghana.

Future work. The effects of mixing pesticides to combat black pod disease and myrids on the other problem; evaluating the use of cocoa pod husks as a substratum for the mass production of *B. bassiana*; and surveying for natural enemies (especially pathogens) of, and using them to manage, the cocoa stem borer (*Eulophonotus myrmeleon*) and other major insect pests of cocoa.

Budget. US\$10 000

Start date. 25 October 2000

Country. Cameroon, Ghana

Activity 13. Development phase for the biological control of black pod

Person in charge. Mr P.Tondje, IRAD

Summary. A strategy for increasing farmers' incomes through reducing cost of black pod disease control is necessary and could be achieved in this activity. In Cameroon, black pod disease can cause 80% losses in cocoa farms when these are left untreated by chemical fungicides. However, heavy use of chemicals can cause disease resistance, and non-target effects on beneficial microorganisms, humans, and the environment. In addition to this, the prices of chemical fungicides are becoming prohibitive for the cocoa farmer.

The biological control strategy, through the mass production and release in cocoa plantations of one or more natural microbial antagonists isolated from cocoa agroforests is expected to become a valuable tool in combating this disease, known to be the most damaging cocoa disease in Central and West Africa.

Progress. Field sampling, isolation, and screening of microorganisms for their biocontrol potential against *P. megakarya* have been conducted, with particular emphasis on endophytes, microorganisms which live within the plant tissue and are thus not affected by radiation (UV or visible). The work is being conducted in four sites throughout Cameroon's cocoa-growing zone, at different times of the year, to take account of changes between the dry and rainy seasons.

Fungal and bacterial endophytes have been isolated and stored using the leaf disc method, the precolonized plate method and cocoa pods. Some of these have been identified as potential biocontrol strains against *P. megakarya*.

A biocontrol workshop, organized by IRAD in collaboration with IITA, and with expert assistance from USDA, ARS, CABI Biosciences, and Mars Inc. was held in Cameroon in 2001 to provide practical training for scientists from Cameroon, Ghana, Nigeria, and Côte d'Ivoire in the methodology of biocontrol of plant diseases, with particular emphasis on cocoa black pod disease. A working group on the biocontrol of plant diseases was set up by the African participating countries to work on: the collection, evaluation, and sharing of materials and information between institutions and countries; the extension of known cultural control practices such as crop sanitation; developing short-term strategies to reduce the impact and cost of chemical fungicide inputs; and the promotion of techniques to evaluate and improve soil health.

Constraints. Lack of vehicle, and the need for more laboratory equipment and larger laboratory space.

Future work. The field-testing of effective biocontrol agents, in collaboration with farmers and extension workers. Four of the fungal endophytes found have been identified as wood decay fungi. The use of these on diseased cocoa pods in cocoa farms should stop the spread of *P. megakarya* through cocoa pods, and speed the composting of cocoa pod husks. The composting of the husks associated with these fungal biocontrol agents could themselves be a very good strategy to combine organic fertilization and biocontrol of black pod disease in cocoa farms. Such a program could be implemented in collaboration with farmer organizations.

Budget. US\$31 000

Start date. 28 September 2000

Country. Cameroon

3.0 Germplasm management and distribution

Four activities, two developed in cashew and two in cocoa areas, were presented in this session: “Regional cashew survey”; ‘On-farm testing of cashew varieties’; “Clonal multiplication of cocoa tissue culture and vegetative propagation system” and ‘On-farm testing of cocoa varieties’. The last one was discussed but the activity has not been implanted yet. Progress by activity:

A regional cashew survey was carried out by Clive Topper of Biohybrids in five West African countries to facilitate a regional plan of action for cashew research and development in the area. The result was:

- Vegetative material available in each region assessed and pest and diseases were identified.
- The levels of research and distribution were checked.
- Farmer associations were met in all countries and training was constantly requested.
- The main problems in cashew production are being identified.

In “On-farm testing of cashew varieties”, five promising clones have been selected following multicolumn trials and cocoa varieties tested for farmer use. The link with “Regional cashew survey” will be highly advantageous.

Collaboration between STCP and Pennsylvania State University has enabled the development of clonal multiplication of cocoa tissue culture and vegetative propagation system. The fact that 2–3% of trees produced more than 60% of yield and 75% of plants are from unselected stock, makes it necessary to increase the quality of planting materials available for farmers.

The aim for the STCP project may be to develop local cocoa propagation expertise and establish cultures.

“Acquiring local agronomic and ecological knowledge about cocoa agroforestry systems” activity was not presented in this workshop. Its summary is enclosed in this report because the activity has been developed in the research and technology transfer component and training of research on agroforestry and knowledge acquisition has taken place in Cameroon.

It has not been possible to identify constraints in this short period because these processes need more time for testing. However, how much research effort should be put into these activities and how benefits can profit smallholder producers must be considered. If the exchange of germplasm is important for cocoa breeding and related activities, operations must ensure that needs can be satisfied without transferring pest and diseases from one cocoa-growing region to another.

Developing improved breeding lines or varieties for cocoa and cashew, with defined qualities for target environments needs the availability of germplasm collection for active use. Improved varieties are the fundamental product, which determines what is profitable for farmers to do. Currently farmers can only use from locally bred varieties, so efforts to develop new materials, using modern genetic tools, is a priority, yet not fully addressed by STCP. Promising clones should then be selected and different varieties tested and diffused. Additionally, representative genetic materials (high

quality) must be available to safely conserve biodiversity and any utilization must aim at improving the livelihoods of smallholder farmers in the region. The efforts of the University of Reading, England, to evaluate genetic cocoa materials and include this in a database (International Cocoa Germplasm Database, ICGD), should be linked and supported by STCP. Also, the “Intermediary Quarantine” facility at Reading is the only recognized source of cocoa genetic materials for West Africa.

Activity reports are provided in activities 14–16.

A protocol for technology transfer

West African countries, as many other developing countries, need a rapid agricultural growth in order to increase food production for their populations and supply exports (mainly when supplies are regionally or globally scarce and/or highly appreciated and locally abundant).

The vision is to transform cocoa production through several technological innovations and a delivery service using participatory methods, such as farmer field schools, to ensure their dissemination amongst farmers. At the hearth of this transformation is to connect research with economic growth and develop critical links to pilot projects that will be implemented in the future in each country. There is a need for profitable agribusinesses, sustainable quality cocoa supply and efficient land use.

A key issue in this component is how does STCP translate technology into real income for smallholders.

Economic growth depends on the ability of agents to innovate. Innovation is anything new introduced into an economic process, and it is defined as the ability to use knowledge in response to market opportunities or other human needs. Most of the innovations required to overcome market failures in cocoa (such as integrated pest control, or natural resource use) are dependent on collective action, since each farmer’s productivity depends on what the neighbors do. The social issues involved in the dissemination of innovations must be considered to increase chances for success of STCP. The partnership has to make sure that the strategy implemented for technology dissemination is not a reflection of the biases of the RTT team. With these preventive measures STCP will avoid the risk of negative externalities.

A regional best practices package could include technical training for the growers, using participatory approaches like the Farmer Field School training method and other participatory methods for technology transfer with emphasis on sustainability (such as it is pursued in the activity of “On-farm testing of cashew and cocoa varieties”). Ex-ante evaluation (with mathematical models and simulation models) is recommended as a priority to estimate the value of this new technology alternative. The experimental and validation phase will come after. In the experimental phase we may find problems with the producers such as: refusal to do something that is unusual; a conflict between selling and personal consumption and a tendency to abandon the innovation proposed. The investigator or extension agent could include a suggested compensation cost for the possible failure.

Diffusion and impact must be measurable for the transfer of technology processing. The first can be through a ‘training curve’ where a model with two parameters will show which one of them has the most weight. (b_0 = percentage of producers using the

technology alternative for the first time and b_1 = a constant to express the information interchange rate by action of the transference of technology specialists). We can link this with the use of different methods of extension and with time (mainly if the production is subjected to seasonal change).

Activity 14. Regional cashew survey

Person in charge. Dr C. Topper, Biohybrids

Summary. At the STCP Regional Implementation Workshop in Ghana in May 2000, it was agreed that a survey of the constraints and opportunities facing the cashew industries in five West African countries would be a crucial starting point, to facilitate the establishment of a regional plan of action for cashew research and development in the area. This survey was conducted in January (in Guinea, Guinea Bissau, and Côte d'Ivoire) and February (Ghana and Nigeria) 2001. Its main findings were:

Pests and diseases. Insect pest damage is currently of much greater significance than disease problems, although this situation may change with any expansion of cashew production in the region. Two Hemiptera sucking pests and thrips were identified as probably the most economically damaging pests in the region, with other insects causing serious damage on an isolated scale or sporadically. There is an urgent need for quantitative data on the economic status of pests and diseases, including their distribution in each country, the frequency and intensity of damage caused, and the loss of farmer income due to the different pests and diseases.

Other constraints. Flowers drying out with no production: this is sufficiently serious and widespread to warrant immediate research. Bush fires and the subsequent damage to the crop is one of the major constraints to the production of cashew, which fruits towards the end of the dry season when fires are at their most devastating. Experience in other countries has shown that, as more and more farmers grow cashew, fires are almost automatically brought under control.

A study is required of the economics of high density planting in each of the countries, since yield potentials and input costs (such as labor for weeding) will vary considerably.

More quantitative yield information is also required from a representative number of farms from the main cashew growing areas, in order to determine the yield potential and profitability of cashew in the different areas.

Germplasm availability and improvement. There is enthusiasm for cashew in all the countries, the farmers often expanding their production with little or no support. Only in Nigeria is there some evaluated seed for sale, and even this could be substantially improved. The universal complaint is lack of good planting material: much needs to be done with regard to selection, introducing new material, establishing germplasm trials for the short, medium, and long terms, breeding and finally distribution of planting material to farmers. Because of the long time frame for evaluating cashew material, the need to multiply good material for distribution and the importance of providing farmers with the right material, funding for a future regional breeding program must have the highest priority. In this connection, the techniques of tip or bud grafting to produce clones need to be introduced; without these, any trials are subject to an undesirable level of variability. It is proposed that an experienced cashew grafter give a workshop for scientists and/or technicians from each country, so as to transfer the technology as quickly and reliably as possible.

Research, extension, and training. All the countries concerned (although to a lesser extent in Nigeria) suffer from lack of staff, experience, and funds for cashew research and extension. Current approaches are not necessarily appropriate and various proposals are made for change. The need for training at every level is highlighted, from tertiary through to farmer associations, most of which currently receive no support at all.

Recommendations are made concerning: a workshop, trials, the production of pest and disease manuals, a literature review, the collection of quantitative data on the economic status of pests and diseases, the establishment of a network of coordinators, and an improvement to the level of communication.

Budget. US\$50 000

Start date. 14 November 2000

Country. Cameroon, Ghana, Nigeria, Guinea, and Côte d'Ivoire

Activity 15. On-farm testing of cashew varieties

Person in charge. Dr M. Camara, IRAG

Summary. IRAG, the agricultural research institute of Guinea, has been developing high-yielding cashew germplasm for distribution to farmers since 1996. Five accessions have been selected for yield and fruit qualities; multiplication of these will make material available for on-farm trials to allow farmers to increase the capacity of their plantations.

Progress. A cashew seed and wood lot has been established to promote the adoption of selected germplasm and standard plantations; selected germplasm has been distributed to farmers through nursery establishment; on-farm variety trials have been conducted in the main cashew-producing regions; training has been provided for extension workers and farmers through the above trials in establishing nurseries and grafting techniques; germplasm selection has been conducted.

Future work. Initiation of in vitro cashew culture; establishment of a mini biotechnology laboratory; equipment; and training.

Budget. US\$15 000

Start date. 1 September 2001

Country. Guinea

Activity 16. Acquiring local agronomic and ecological knowledge about cocoa agroforestry systems

Person in charge. Dr F. Sinclair, University of Wales, Bangor

Summary. Increasing smallholders' productivity requires interventions compatible with maintenance or enhanced ecosystem services. The focus of the study is on the multistrata cocoa agroforests of southern Cameroon, which are unique in West Africa in terms of their complexity and biodiversity. The working hypothesis of the study is that a substantial body of farmer knowledge surrounds the ecological functioning of this complexity, which, if captured, can offer important directions for both extension and research to improve livelihoods in a sustainable fashion among farmers, engaged by the STCP. This work is complemented by a similar effort funded by DFID in Ghana.

The specific objectives of this research are to:

1. Acquire farmers' knowledge about ecology and management of cocoa multistrata systems creating explicit knowledge bases that are a durable and dynamic record, for a range of contrasting sites in Cameroon.
2. Compare knowledge across sites with contrasting agroecological and economic conditions in Cameroon and them more broadly across STCP member countries.
3. Evaluate the implications of this local knowledge, and its distribution nationally and regionally, for planning research and extension activity.

In association with achieving these research objectives, three specific capacity building aims will also be met: to educate a Cameroonian scientist in methods of knowledge acquisition and interpretation; to raise awareness of local knowledge about multistrata cocoa and its relationship to scientific and technical objective; and to develop a regional network of people and institutions working on developing knowledge about multistrata cocoa through which knowledge and experience can be exchanged amongst STCP members.

Progress. *Capacity building:* a Cameroonian scientist has received extended education in agroforestry research and methods of knowledge acquisition. A national workshop on knowledge acquisition was held at the IITA humid forest ecoregional center in Yaoundé.

Knowledge acquisition: Local knowledge has been acquired on the establishment and management of cocoa agroforests in four different localities distinguished by agroecological zone, population density and market access.

Future work. Year 2: educate the Cameroonian scientist in methods of knowledge analysis and interpretation; validate the local knowledge base with a large stratified random sample and map knowledge distribution across the entire cocoa producing region of southern Cameroon; and hold a regional training workshop on knowledge acquisition.

Year 3: the research would be completed in year three when it is intended to: compare farmers' knowledge across STCP member countries in the region (in conjunction with DFID- and BCCCA-funded projects in Ghana); and consider the implications of local knowledge for research and development with government bodies and farmer organizations.

It is anticipated that the findings will shape both the design and delivery of extension messages and the scope of national research programs. The nature of the research will deliver sustainable capacity in participatory research methods in the region, as well as the research outputs.

Budget. US\$35 000

Start date. 12 January 2000

Country. Cameroon

3.0 Market information systems session

The first presentation was: “A conceptual framework for a pilot project for farmers: USGS products available and the pilot integrated production and marketing information system in southern Cameroon”. This presentation can be linked to the complementary activities of West Africa Land Information System. The United States Geological Survey (USGS) gives support to producers’ associations in Cameroon to develop GIS-supported information systems for tree crop production and marketing. It provides information to potential buyers and increases the transparency of the cocoa market. Cocoa is produced by low-income farmers in tropical regions, and consumed in richer countries. Therefore, the demands of consumers must be taken into full account. Consumers want total transparency in “process” attributes, as well as the social and environmental context of production. Labor practices are of major concern.

STCP should guide efforts to include securing the databases that will allow the development of web-based information systems to document the package practices. These objectives are included in an assessment of the viability of carbon sequestration in sustainable cocoa. Given the small sizes of farms, tracing of products to origins must be provided at a level of aggregation covering several thousands of farms. The unit being traced or checked for quality could be a farmer organization or aggregation of farmer organizations within a given area. The challenge here is how large the “unit” should be, how the quality checks can be implemented near to farm gate, and how will this be funded.

“Identity preservation and improved market conditions in West Africa” was another presentation, linked with “Tree crops supply chain information systems” (numbers 17 and 18) including “MISD activity report” and “Tree crops information and quality management center” by P. Sigley, “Nigeria tree crops information and quality management center” by C. Akinola, and “Quality management system pilot” by S. Hogsbro.

After the elimination of parastatal marketing boards and the appearance of new institutions, it was necessary to study the effects of competitiveness on the marketing chain, product quality and share of cocoa price received by smallholders. STCP needs to know the viability and the impact of trade policies, the innovative marketing institutions and the new market conditions in order to provide access to a strategic market for smallholder tree crop producers. Additionally, there are problems in supply and in raising the quality of cocoa beans. The most innovative proposal in the market system is identity preservation (based on product attributes and process attributes), which, with modern computing technology, it is now possible to achieve.

A draft project document has been produced for introducing tools to modernize cocoa marketing. A quality management center with audit trails has been proposed to provide a commercial framework for the cocoa trade and other tree crops under the warehouse system. Its functional areas are information connections; integrating the warehousing program; management strengthening of farmer organizations (managing resources that require collective action is more difficult for farmers than individual actions and for this constraint, donor funds would be better spent strengthening the efficiency and business competence of the farmer organizations which can benefit from the inefficiency of the traditional marketing sector); trade development; transportation and handling and inputs supply.

In order to know the prototype supply chain in the cocoa market in West Africa and its linkages, there is a need to assess the cost and marketing margins in each link. STCP needs to establish the links between trade and environment (both consequences of human economic activities) to ensure the sustainability of sustainable economic growth.

The key issue for future STCP activities is how to develop a national or regional agency that provides product information to consumers, as well as market information to farmers. That is, to build confidence at all levels.

The identity preservation system should deliver benefits to farmers as well. That is, to reduce distribution chains and increase incomes by enabling farmers to finance their harvests and sell through their own organizations. STCP needs to assess with its partners how these features influence the chocolate product marketing plans of the future.

Key issues that need to be further address in this component:

- Can quality identity be preserved in the cocoa supply chain?
- How does STCP address traceability beyond the farm gate?
- Are industry or consumers willing to pay for this information?
- Will returns from such systems be sufficient for their sustainability?
- If the current supply chain does not encourage the adoption of best practices, what do we do?
- Where will costs of additional quality checks fall? On the producers?

Activity 17. Tree crops supply chain information systems

Person in charge. Dr P. Sigley, CAL/Dr C. Akinola, EFDI/Dr S. Hogsbro, ECOMINDS

Summary. The payoffs from developing an M&ISD objectives are likely to increase the ability of farmers to improve their share in market decisions. Price discovery and transparency; better finance upstream, and reduced credit risk through performance visibility are mechanisms through which objectives could be achieved.

A strategy would involve the following components: quality management and identity preservation in the form of tagged bags or containers, an audit trail to cover the physical location and assessed quality, and market transparency; licensee performance, with participant performance registered against contracts, independent arbitration, market supervision and a disciplinary regime; collateral management and market information, covering the current owner and interested parties, control over the process, stock positions, and research information; a farmer information portal, providing information on world prices, extension support, environmental conditions, discussion forums, and supporting farm diversification; an international licensing organization, providing standardization of processes and regulation, local agency representation in each country, sustainable funding through subscription and transaction fees, and a system licensor; a system operator, in the form of an independent organization, operating under license, providing service-level agreements, and ensuring integration with supply-chain systems.

Progress. A draft project initiation document has been produced, with the following components: quality management and identity preservation; licensee performance; collateral management and market information; a farmer information portal; international licensing organization; and a system operator.

Constraints. Funding; regulatory framework at national level; the existing up-country framework; political sanctions.

USGS work on land registry and extension management; IMFUNDO, AfricaLink, and BusyInternet on the up-country infrastructure; guarantee and clearing infrastructure; local IT initiatives; link to futures and physical exchanges; ICCO projects, including a pilot project on price risk management for cocoa farmers; and the improvement of cocoa marketing and trade in liberalizing cocoa-producing countries.

2001–2002 activities: QMS pilot project; detailed evaluation of donor support; presentations to trade and industry; licensing organization; system ownership.

Quality center would be managed by independent warehouse keepers and regulated by independent organizations. It would share a satellite link with the local farmers' group and consist of an administrative center and a testing center, dealing with various qualities of cocoa, coffee, cashew, fruits, vegetables, and other crops. It would be located near to the headquarters of the farmers' group and a bank offering facilities for individual farmer's accounts or a central account. Such a center would offer independence of management, and would have the support of farmers, cooperatives and the government; as well as that of the donor institutions, and the banking and finance sector. It would need to operate with well organized farmers' groups. It would represent an opportunity to share infrastructure (telecommunications, roads, electricity supply, etc.), link farmers' groups, require the development of sound market practices and have a progressive impact on business conduct, and would provide a basis for the operation of certification schemes if required.

Budget. US\$120 000

Start date. 1 August 2001

Country. Cameroon, Côte d'Ivoire, Ghana, Guinea, and Nigeria

Activity 18. Baseline study of cocoa farms in Nigeria

Person in charge. Dr C. Akinola, EfiDI

Summary. Understanding the socioeconomic characteristics of smallholder cocoa farmers in Nigeria will help to identify the gaps in the roles and meet the needs of smallholder farmers and consumers. The specific objectives of this study are: to determine needs and priorities of the smallholder cocoa farmers; to develop specific strategies to address specific needs of the farmers; streamline strategies for sustainable cocoa programs, making them efficient and sustainable in the long run; to develop the capacity of the cocoa farmers to identify, drive, and sustain their development program.

Progress. Initial planning meeting held; major cocoa growing areas identified for the baseline survey: Ondo State produces about 65% of total cocoa production in Nigeria; baseline survey questionnaire pretested in sample communities; survey procedure harmonized; enumerators trained; baseline survey conducted in August and September 2001; data entry training conducted in September 2001, and primary entry of baseline information concluded.

Future work. Cross checking of data, analysis, interpretation, and reporting.

Budget. US\$20 000

Start date. 1 July 2001

Country. Nigeria

4.0 Policy session

Sustainable agricultural development depends to a great extent on sound economic policy to address adequately the problems of natural resource management. Because of their nature (smallholder based and linked to world markets), tree crops can generate both macroeconomic gains and increases in smallholder incomes.¹

To identify and promote policy and strategy options that improve the efficiency of the tree crops sector, several steps have been made by STCP: discussion with researchers, donors, NGOs, and industry; experts have been selected; the child labor issue has been incorporated in STCP in order to examine and formulate a plan, and studies about the impact of technological change and policies have been developed.

“Cocoa marketing in West Africa and child labor issues in cocoa system” (numbers 19 and 20) activity includes “An action plan to address child labor issues in cocoa systems”, by J. Hill; “Economic assessment of new institutions for cocoa marketing from West Africa: bulk transport and identity preservation” by Abbott and Masters, and “Increasing farmers incomes from cocoa production in West Africa: some notes”. The two presentations in this session, “Analysis of alternative approaches of marketing in West Africa, policies, and economic impact” and “Social responsibility and agricultural systems in West Africa: cocoa labor studies”, were based on those activities.

The suggested policies must be addressed to increase environmentally friendly practices, to discourage abusive labor practices for children, and to create product differentiation (improving quality control and obtaining premium payments to farmers and others in the supply chain). However, the policies for development must cover household food security and, only after this, assure long-term sustainability. Poverty alleviation and sustainable natural resource use will be complementary but this may take generations.

Tree crops like cocoa and cashew have the potential to be a major force in reducing poverty. Four policies have been suggested to enable such potential to be realized: (1) removing taxation of exports (2) providing reliable currency for saving during booms, (3) unlocking the collateral value of perennial crops, and (4) branding and price discrimination to increase the market share without depressing the prices.² In addition, there is an increasing need for:

- Macropolicies to stimulate the rural sector (including monetary policies), to better the management of price spikes, and price declines; and, better national governance of the revenues.
- Policies that promote development and strengthening of farmer organizations.
- Policies that promote adequate use of inputs.

¹ The World Bank, July 2002, Reinvesting in African smallholder agriculture: the role of tree crops in sustainable farming systems. The World Bank, Rural Development II, Africa Region.

² Collier, Paul. November 2001. The future of perennial crops. International Conference on the Future of Perennial Crops. Yamoussoukro, Côte d'Ivoire.

Sanders showed how increasing farmers' incomes through price formatting cooperatives in marketing and transport and in management of household requirements allow farmers to find the best option for selling. Also, in order to get rid of the high share of price taken by middlemen, the farmer organizations must work to decrease the links in the chain and/or the marketing margins in each link.

Improved quality control at the farm and maintaining this along the supply chain makes greater returns to the farm. The benefits of tagging, warehousing, and computerized information systems (increased guarantee of quality in the process, reducing costs, and increasing market margins for producers) must be valued and industry and national government need to finance this innovation.

There are as well policies from importing countries that may be implemented in the near future and that may impose a bad-case scenario for tree crops and smallholders. For example, Europe might raise the standards on its imports, which smallholder farmers could not meet. Policy reforms then must be implemented both at the national and international level.¹

Policies that address reinvestments in tree crops should address two dichotomies: the first, over space, reflects the combination of dispersion of producers. The second dichotomy applies over time dimension: long- and short-term interests and perspectives must be reconciled.²

Since May 2000 the cocoa industry has been under pressure to ensure that the cocoa products they import are not produced under child traffic or exploitative practices. Cocoa industry representatives and other stakeholders signed a protocol about this situation on 19 September 2001, a framework for cooperation was identified and baseline surveys for compiling information about producers and their employment practices are being developed.

Employment elasticity of agriculture in most STCP participating countries and in Africa in general is low, and rural as well as non-rural areas are abundant in labor.³ Promotion of labor-intensive innovations will be desirable in tree crops. This will generate employment and income within the non-farm economy (demand for inputs, food services, sewing, processing, flour, pottery, etc.). Policies should search to stabilize household income to pay for children's education and avoid child labor. In addition, households will have income to allocate reserves for low price cycles or climatic adversities. There is also a need to avoid policies that will lead to premature mechanization of farming practices in tree crop smallholdings.

¹ Collier, Paul, November 2001. The future of perennial crops. International Conference on the Future of Perennial Crops. Yamoussoukro, Côte d' Ivoire.

² The World Bank. July 2002. Reinvesting in African smallholder agriculture: the role of tree crops in sustainable farming systems. The World Bank, Rural Development II, Africa Region.

³ Hazell, P., and L. Haddad. 2001. Discussion Paper 34. Agricultural Research and Poverty Reduction. IFPRI

Activity19. Cocoa marketing in West Africa

Person in charge. Dr P.C. Abbott and Dr W.A. Masters/J. Sanders, Purdue University

Summary. The overall STCP goal is to 'improve the economic well being of smallholder tree crop farmers in the West Africa region that is consistent with the environmental sustainability of their tree crop systems'. The desired policy result is 'policy and strategy options that increase tree-crop sector efficiency identified and promoted throughout the tree-crop system'. The next year of the project puts an emphasis on pilot projects, after the gathering of baseline data in 2001. To encourage environmentally friendly practices and to discourage abusive labor practices, the same solution of tagging and product differentiation have been recommended; these are also a method of improving quality control in the system and then obtaining premium payments to farmers and others in the supply chain for these improvements.

This would entail certain changes:

At farm level: avoiding sale at harvest time; using middlemen from outside the region; and improving quality control.

In the marketing chain: shortening the supply chain, through farm cooperatives, which provide storage facilities; farmer financing being tied to collateral and product quality control (the banking sector); and cooperatives joining together to negotiate with processors, creating a countervailing power.

At international level: premiums being paid for quality control, with product differentiation at the country, regional, or farm level, and possibly including other social objectives, such as control of labor practices; and markets being developed for carbon sequestration certificates.

Purdue University has been collaborating with the USAID Bureau for Africa's Office of Sustainable Development to help improve agricultural activities, programs, and policies in West Africa. As part of that overall effort, a preliminary effort to address cocoa trade issues in support of the STCP was undertaken to consider how new and evolving marketing institutions will affect incentives to farmers, national welfare of African cocoa exporters, and the functioning of international markets.

Budget. US\$120 000

Start date. 1 December 2001

Country. Cameroon, Côte d'Ivoire, Ghana, Guinea, and Nigeria

Activity 20. Child labor issues in cocoa systems

Person in charge. Dr J. Hill, USAID

Summary. There is a growing concern that some agricultural goods in developed country markets are being produced under exploited forms of labor practices in West Africa. Cocoa and chocolate have become a focal point to garner attention on the child labor issues. At the same time, at present, monitoring and trade systems do not exist to allow products to be traced to origins, making it difficult to differentiate products in terms of social, economic, or environmental practices used in production and harvesting of cocoa. And, given the lack of information, it is difficult to develop appropriate interventions to address constraints or circumstances allowing unscrupulous or irresponsible practices to be engaged in.

In order to better understand the type of problems that exist, generate information useful in designing and monitoring the success of interventions, and provide a framework under which an international collaborative working effort can be mounted, our approach is to use the Sustainable Tree Crops Program (STCP) as a framework to conduct additional studies and consultations in West Africa. The initial studies that will be conducted over the next six months (Phase I) will look at developing the database of knowledge required to design future substantive activities targeted at the community level (Phase II) by early 2002.

Perhaps the single most important outcome of these research efforts will be to put into place new methods for product identity preservation, thereby providing a system to document key aspects of cocoa production, harvesting, and handling, including labor practices on the farms.

It is envisioned that international consultations and collaboration will be needed, and is critical to the successful outcome of this program. A special working group of labor practices under STCP will be formed and can serve as the coordination vehicle. Consultations with the following groups (but not limited to these groups) will be necessary: USAID, US Department of Labor, ILO, ICCO, UK Task Force, CAL, international and local West African NGOs, CMA/ACRI, CAOBISCO Task Force, UNICEF, West Africa governments, and various international foreign affairs ministries. In addition, close collaboration and input will be needed from implementing groups that are on the ground delivering goods and services, such as IITA and other international research groups, international and local West African NGOs, national trade and industry groups, government policy markets, national agricultural research systems, and national and community-based producer organizations.

Start date. 4 November 2001

Country. Cameroon, Côte d'Ivoire, Ghana, Guinea, and Nigeria

5.0 Plenary session

Policy session—standards of sustainability

‘Standards of sustainability’ (activities 21, 22, and 23) was the subject of this session. Under the premise that the tree crop system is a social ecological system that must be sustainable, standards of sustainability will allow a developing system under a desirable trajectory, appropriate thresholds, and correct elasticity.

Causes of unsustainable resource management were identified as population growth (additional demands for subsistence goods which put pressure on resources), property rights (focused in the allocation of property rights), poverty (a lack of resource regeneration), and prices and government policies (ambiguous effect of input subsidies, land taxation).

The elaboration of standards of sustainability will include indicators of agroecosystem performance and will draw on the results obtained by STCP.

With the key elements identified, the future work will be established in three stages: technical roundtable with review papers, consultation on feasibility and multilevel implications identification before arriving at the goal which is to deliver more efficiently what a consumer wants and, at the same time, to ensure a robust supply. The implications of implementing the standards will be evaluated with research institutions, NGOs, social organizations, and the chocolate industry both at national and regional levels.

Information and communications technology at the STCP

Dr Carol Knight presented “The STCP web site, uses and perspectives”.

The concept behind the ICT strategy of STCP is not complex, and connects the supply chain, which involves producers, processors, traders, the industry, and consumers. The Steering Committee will approve sufficient funding for this activity. Facilitating coordination and cooperation among program partners for efficient implementation is part of the concept. The components in this strategy are the STCP web site (<http://www.treecrops.org>), the tree crops intranet (<http://treecrops.intranets.com>), the list server, and a database. The lack of complexity of the system will make it easier to teach to STCP participants. The goal is to promote information sharing amongst partners and globally. Databases of standard sets of information will be developed and housed at the STCP regional office. Email conferences on key issues will be part of the strategy.¹ It is expected that each country will develop “Country nodes” to increase the flow of information sharing.²

¹ Carol Knight and Jose Luis Rueda prepared this paragraph based on previous ICT experiences in the Andean Ecoregion with “InfoAndina-CONDESAN” and AfricaLink.

² El Agroecosistema Andino: problemas, limitaciones, perspectivas. 1992. CIP. Lima, Peru.

Activity 21. Developing standards of sustainability for sustainable tree crop systems

Person in charge. Dr S. Weise, IITA

Summary. Social ecological systems (SES) go through cycles of reorganization, conservation, exploitation, and collapse. They evolve over time, and cycles occur at different temporal and spatial scales or levels. It is necessary to understand what drives the system, and to identify thresholds of resilience in order to avoid catastrophic system collapse. Tree crop systems are SES.

The system must be sustainable in three ways: socially, economically, and ecologically. Sustainability is a dynamic concept; there is no single optimal combination of the components, and there is continuous change along sustainable development trajectories. When working towards sustainability, we must: *not force systems* into a static state; keep the evolution of the system on a desirable trajectory; identify key system thresholds; build flexibility and resilience into the system; and develop adaptive capacity.

Standards of sustainability are necessary to create conditions to allow systems to develop along desirable pathways within desirable boundaries; to monitor systems, including pilot activities; to promote programs to strengthen weaknesses in systems; and to design approaches for identity preservation and product traceability. The goal of this is to deliver what the consumer wants more efficiently, while ensuring a sound basis for a robust supply. We must focus on the bulk of the production, but not ignore niche opportunities.

Future work. The key elements to be considered are: production system resilience; environmental externalities; labor practices (in the whole sector); farmer organization and management; knowledge and information transfer pathways; credit and financial systems; profitability and equity; market chain efficiency; and product quality. This will be done in three stages:

Phase 1: a technical round table, with a commission reviewing papers by component before the round table; a meeting of technical resource persons at the round table; the identification of technical components and the basis of the sustainability factors; and a set of standards proposed and possible knowledge gaps requiring investigation identified.

Phase 2: a consultation on feasibility, with commercial and developmental institutions and organizations, to review the practicality of the standards proposed and integrate those elements necessary to implement and promote the standards.

Phase 3: multilevel implications identification with producer, government, trade, and industry representatives to review the significance of the proposed standards for the different interest groups and identify the implications of the proposed standards at the local, national, and international levels (economics, trade, etc.).

Budget. US\$50 000

Start date. 1 December 2001

Country. Cameroon, Côte d'Ivoire, Guinea, Ghana, and Nigeria

Activity 22. STCP information management strategy

Person in charge. Dr C. Knight

Summary. The concept behind STCP's information management strategy is one of connecting the supply chain, which involves producers, processors, traders, the industry and consumers; and facilitating coordination and cooperation among program partners for efficient implementation. The components in this strategy are the STCP website, the Intranet, the List Serve, and the database.

The website functions as an overall activity portal at a centralized location, as well as a communication center. It has a general site, providing information to interested parties; and user-specific areas and groups, providing a value-added service for activity participants, layered and grouped according to user type or group; and access-restricted areas. The user-specific groups would be based on the four STCP working groups.

The Intranet provides a member calendar, document storage, a member database, and a group function: members will be able to update, upload, etc., on an individual and decentralized basis.

The List Serves: there will be two of these, a general tree crops List Serve, open to the public; and a tree crops activity List Serve, open to activity participants only. These will serve as additional tools to broadcast information.

The Participant Database: a database has been created of attendees of tree crops meetings, and a members' directory will eventually be produced.

The action plan for this is:

Phase 1 (April to September 2001): create and launch the website and the Intranet, and create and operate the List Serves by end September. The members' database has already been created.

Phase 2 (October 2001 to September 2002): monitor and review the website; expand the Intranet; strengthen the database; migrate the website and Intranet to IITA.

The members are called upon to: use and review the website; use the List Serves; use and populate the Intranet; and identify gaps and assist with revisions and additions.

Budget. No budget

Start date. 1 September 2001

Country. Cameroon, Côte d'Ivoire, Ghana, Guinea, and Nigeria

Activity 23. National network coordination Nigeria

Person in charge. Dr C. Akinola, EfDI

Summary. After the STCP forum in Washington in October 1999, Enterprise for Development International (EfDI) was nominated to coordinate the establishment of the GBSS work plan and the STCP network in Nigeria. It contacted other Nigerians who had attended the meeting, or were prominent in the area, and the Nigerian STCP network was formally inaugurated on 12 February 2000. Subsequently, more members were nominated to join the network after the Accra meeting.

During Year 1 of STCP activities (September 2000 to October 2001), the network participated in the Yaoundé Steering Committee meeting, and held several ad hoc meetings afterwards to review the progress of STCP activities. Several preparatory meetings were held prior to the March 2001 Steering Committee meeting, between the network members and farmers and other stakeholders, and press releases issued to the major newspapers on the activities of the network and the holding of the Steering Committee meeting. The Steering Committee meeting was hosted at IITA-Ibadan, and the network also facilitated a field trip to the Cocoa Research Institute of Nigeria and the GBSS project site in Ondo State. A meeting was held (22 June 2001) with Chris Light to provide input into the development of the STCP Website and Intranet. Particular mention was made of the problems with electronic communications in Nigeria. Unfortunately, 90% of the Nigeria network members cannot be reached by telephone or e-mail.

The Nigeria network participated in the ICCO/ICMT seminar in June 2001; and held a consultative session on cocoa development at the Cocoa Association of Nigeria secretariat in August 2001. It held preparatory meetings for and participated in the Implementation Assessment Workshop at IITA-Ibadan in September 2001; and then held an ad hoc meeting at CRIN, Ibadan, to discuss the outcome of the workshop and discuss the development of the Year 2 work plan. The network maintains close links between the STCP Coordination office in EfDI and the Coordination Unit in Cameroon, passing information on to its members. It also acts as a STCP information and resource center in Nigeria.

Since the end of the Year 1 activities, the Nigeria network has participated in 3 telephone conferences, reviewing progress, updating on activities and discussing pilot projects and bridging funds. It participated in the conference on the Future of Perennial Crops in Yamoussoukro (November 2001), and has submitted a draft pilot project proposal to the Coordination Unit, entitled "Nigeria tree crop information and quality management center pilot project".

The main problem the Nigeria network has encountered in its activities is the difficulty it has in contacting its members, since most of them have no access to either telephone or the Internet.

Budget. US\$10 000

Start date. 1 September 2000

Country. Nigeria

6.0 Plenary session

Future direction of the STCP

Jeff Hill opened this plenary session with a review of the previous two days and an introduction to the day's activities. The first speaker was Jose Luis Rueda: "The performance measurement plan (PMP) at the STCP: importance and benefits". The document had been prepared by STCP consultant Leslie Fox.

The performance measurement plan (PMP) is an element of a strategic plan for STCP. However, STCP needs to develop two of the elements incorporated in all PMP's in order to measure its performance at the program and/or activities level:

- Results framework: hierarchy of results (strategic objectives, intermediate results and sub-results) linked by causal relationships. Could be constructed during the strategic planning.
- Performance indicators for each result.
- Developing an approach and methodology for data collection (baseline and progress).

A strategic plan allows an approach for the program to be focused on:

- Objectives (to improve the well-being of smallholders and to develop sustainable tree crop systems). These are strategic objectives and contribute towards achieving a program goal.
- Results (increasing productivity of high quality, improved efficiency in the marketing chain, increased competitiveness of African tree crop product in the international market, improved livelihoods for farmers and conservation of the natural resource base and biodiversity). These are intermediate results and sub-results and contribute towards achieving a strategic objective program.

The key achievement indicators at the strategic objective level have been defined as:

STCP strategic objective: *"Improve the economic and social well being of smallholders and the sustainability of tree crop systems"*

Indicator 1

The number of smallholders that indicate increase in rural incomes, and reduced vulnerability to major threats to their livelihood assets.

Indicator 2

The number of countries that have implemented socially acceptable labor systems in the production of agriculture based raw materials.

Since May 2001, STCP has been concerned to incorporate a new expected result: 'socially acceptable labor practices are used in cocoa production in West Africa' and the PMP may be used to design the results framework.

The planning for PMP includes the following steps: preparation, approval by the Steering Committee, implementation, developing of performance targets, validation exercise (results, indicators and targets), performance monitoring data sheets, stakeholder training, baseline data collection, an annual report and a performance external review (USAID).

The following points were suggested for future actions on the PMP:

- When can we say that one objective has been achieved if this achievement was in a small area? (issue of hierarchical levels).
- What is the responsibility of STCP?
- Without good quality definitions of objectives, we cannot measure them.
- We need practical, clear and measurable indicators.
- The child labor issue.

The last presentation in this plenary session was 'Identification of Key Elements of Program Review and the Future Direction of STCP' by J. Hill.

This was an assessment of the activities implementation and a first step towards the future of STCP. The session began with an overview for testing the success of activities. Key elements of the program were identified and future directions and challenges were added, with particular reference to coordinating efforts (both in cooperation with regional and international organizations and with service agencies and groups at country level), and the necessity to access other expertise within STCP. A call was made for improved organization and increased effort.

Finally, the first steps for developing a framework pilot project were formulated:

- A pilot project in each country may be focused on a geographic area, which already has producer organizations and where technology transfer and synergy is possible.
- The possibility of having multiple pilots in Côte d'Ivoire. (planning notes defined the integrated community based pilot project located in seven different producing locations: three in Côte d'Ivoire and one in each of the target countries).
- Do you understand the concept of the pilot? It is feasible? Can we test alternative approaches? And if it is not feasible, what are the key actions that need to be done to make it so?
- At present we have a situation where different farmers' organizations have different approaches for marketing information, information systems and technology transfer.
- The National Coordinator for Guinea explained how they chose a pilot zone, the role of each participant, how they worked in harmony with the government
- National plan and the variety of people/agencies involved, etc.
- Duration of pilot and resources.
- Pilot project planning and task and responsibilities (these have been defined in planning notes).

7.0 Plenary session continues

Presentation of the pilot projects framework (Jeff Hill)¹

A pilot phase of efforts is proposed that will provide a framework for implementing and, in turn, testing the feasibility and impact of technical interventions and services aimed at raising the social and economic circumstances of workers, households and communities involved in tree crops production. The pilot phase will include a three-year period, with the initial two years committed to implementing the interventions; and one year aimed at assessing the impact of the alternative approaches being tested, developing the national and international alliances and mechanisms needed to scale up the efforts. The pilot phase will include seven integrated community-based pilot projects, regional (cross country) projects to support and harmonize efforts of individual pilot projects, and strategic analysis activities to develop indicators of sustainability and assess the social and economic impact of the interventions on workers, households, communities, local and multinational trading systems, producing country revenues, as well as chocolate manufacturers. The focus and heart of the effort will be the community-based integrated pilot projects. In Nigeria, Guinea, Cameroon, and Ghana there will be one pilot project implemented in each country. In Côte d'Ivoire, which accounts for nearly half of the world supply, three pilot projects will be implemented. To benefit from the ongoing studies, the pilot projects will not be initiated until findings from the studies are available. However, initial planning will proceed to ensure timely implementation, so that activities are on the ground by the next crop campaign. The pilot phase will make important contributions to the efforts being taken by industry, governments, and development agencies to address and implement the "Protocol". They will help establish what approaches and systems are credible in systemically tackling the problems of child trafficking, the worst forms of child labor, and the poverty that underpins these problems.

A key commitment of the STCP is then to get child labor issues addressed in the pilot project locations, focusing on workers, households, and communities where cocoa is produced and marketed. Six types of interventions need to be in place and servicing the pilot project locations. They include: (a) monitoring the conditions of work, (b) trafficking interventions, (c) labor recruitment and placement, (d) community-based social production, e) community-based basic education, and (f) research to assess the severity of problems and the impact of anti-child labor and trafficking activities. This does not include the full range of child labor issues or efforts that will need attention in West Africa. There are strategic needs for building national and regional capacity to tackle child trafficking and labor issues for rural and urban areas across West Africa.

National networks

The national networks were created to ensure the participation of all the stakeholders and to coordinate STCP activities at country level. Each national network has about 15 members from the affiliated organizations and works in the four components of the STCP program. The chairperson is elected for a two-year period and represents the network on the Steering Committee. Since their nomination and formal inauguration, the national networks have been represented at all meetings and workshops concerning STCP.

¹ J.Hill. 2 Feb. 2002. Sustainable tree crops program: status, issues and actions.

Each country, in this session, developed a framework for the pilot activity: partners, capabilities, resources, communities involved, status of information technologies in countries and constraints/opportunities in the market.

During the year, national networks were formally established in Côte d'Ivoire, Cameroon, Guinea, and Nigeria. A national network will be set up in Ghana during the current year. The STCP national networks (NN) serve as a forum of interest groups within the country to identify and discuss the issues most important to them; to develop country specific action plans; to coordinate program efforts within the country; and to identify representation in the regional steering committee. In Cameroon, Côte d'Ivoire, Guinea, and Nigeria the national networks have effectively broadened awareness of the program and coalition. Broad consultations have taken place. Among other things, the national networks worked with the regional project to complete baseline surveys in each participating countries. The baseline survey is complete or underway in all five of the countries. This will support both planning and monitoring as the program proceeds. NN issues arising from the first year of the program include: (a) how to effectively engage the child labor interest groups in the STCP NN forum, (b) there is a need for improved communication facilities within the NN, (c) how to effectively monitor activity performance and communicate program results, and (d) the need for criteria and a process for targeting pilot projects. These issues will be specifically addressed as part of the planning for the pilot projects. (See national network annual reports for more details). In Nigeria, the STCP network includes groups such as: EfDI, CRIN, CAN, TFU, NEST, ACDI/VOCA, Ministry of Environment, NAFDAC, FUTA, NCDC, ICCO/ICMT. In Guinea, STCP network includes groups such as CRAF (Centre de Recherche Agronomique Foulaya), National Federation of Café and Cacao, OPIP (Office of Promotion of Private Investments), Planteurs Cajou-Boké, ONG, DPDRE, Ressources Naturelles & Production, and Chambre Nat Agriculture de Guinea. In Cameroon, the STCP network includes groups such as: FORCE, IRAD, IITA, CICC, ONCC, CAPCAO, ODECO, SAILD, SALSTRA, CRASIC, MSORAD, FRPROCAM, MINAGRI, MINREST, etc. In Côte d'Ivoire the STCP network includes groups such as: BNETD, SOCODEVI, CNRA, Aleh-Ahun, Aproca-CI, ANADER, PACCC, Minagri, GTZ-Prostab, CIRAD, GEPEX, BCC, ARCC, EWW, etc.

Child trafficking and labor

In mid-2001, a concern was raised about child trafficking and abusive child labor practices in agriculture in general and cocoa in particular in West Africa. To address this, STCP developed a child trafficking and labor action plan that includes studies to examine the incidence and characteristics of the practices, the development of linkages with child labor interest groups, and the development of pilot projects to support field activities aimed at addressing the problems in cocoa systems in West Africa.¹ The action plan builds on the ongoing activities and linkages that STCP has been able to establish. Specifically, the STCP baseline survey was modified to include information on labor practices in cocoa; linkages were developed with DOL and ILO to provide technical support for the studies; and a technical advisory committee was established to provide input on the survey process and review findings coming from the surveys. In September 2001, a protocol was signed with industry and members of the US Congress to address abusive child labor practices in cocoa.

¹ J.Hill. 2 Feb. 2002. Sustainable tree crops program: status, issues and actions.

The chocolate industry is extremely concerned about allegations of abusive child labor in cocoa growing in West Africa. A comprehensive approach has been put in place that lays out a specific timetable to determine the extent of the problem and to establish a system ensuring cocoa is grown without abusive child labor.¹

8.0 Closing session: concluding remarks

J. Hill started the presentation of the closing session with a discussion of four follow-up areas of immediate attention:

- **Pilot projects:** a common set of guidelines, preliminary proposals for pilot projects should include baseline data and initiation of these pilot projects.
- **Research:** the Steering Committee demanded quality research. The Chair of Research (Martin Gilmour) is to receive reports and national proposals from each head of research to report to the Steering Committee.
- **Follow-up:** visits by farmers' organizations from Cameroon and Guinea to SOCODEVI and CdI farmers' organizations must be set up.
- **Reports:** countries must produce reports on their activities; their funds for next year will be conditional on this.

Concluding remarks¹

The first year of implementation in the STCP has generated important lessons about how to effectively organize an effort such as this. Gaps in the program have been identified. Governance systems have been established. Community based producer organizations have been formed and linked to STCP. Strategic advances have been made in making science and technology available. Innovative information systems have been designed and tested. And, a strong commitment for public and private interest groups to work together has been established. It is also clear from the first year activities that adjustments are needed to the program. These adjustments should improve the linkages between the various activities being implemented, focus the agenda and efforts of STCP, and ensure its relevance in tackling strategic issues important to the STCP coalition. And, in the process of shaping these, STCP should integrate the issues around child labor and activities to address them.

Program objectives are focused on strengthening organizations (farmers' organizations in this case), farmer productivity (increased productivity through new technology and trade) and natural resource management, which is a basic element in poverty alleviation. The countries involved in program implementation are among the most needy in the world and sites for activities development have special local production and market characteristics.

Poverty reduction requires monitoring systems that provide accountability against poverty objectives and effective lesson learning and feedback (they must contribute to evidence on how the poor have benefited from output or impact).

¹Issues, trends and performance of the chocolate and confectionary industries. NCA and CMA publication. 2002. pp 26.

¹Comments and remarks are based on: J.Hill. 2 Feb. 2002. Sustainable tree crops program: status, issues and actions.

With regard to tree crops within an agricultural production system, the STCP is a social, economical and ecological sustainable system; it develops a strategic plan to produce measures (parameters, surveys, bio-mathematical testing methods, indicators) that provide a important number of reports, briefs and summaries. These made possible assessment activities at the Ibadan workshop and will contribute to future evaluations.

Grower business support and services

Grower business support and services has delivered a package of activities to strengthen the capacity of the rural poor and their organizations.

In the first year of operation, substantial progress has been made in organizing and developing tools to strengthen community based producer organizations. In Nigeria, the Tonikoko Farmers Organization was established, involving tree crop producers in 80 villages in Ondo State, and representing at least 2000 tonnes of cocoa. And the concept for a model tree crops information and quality management center was developed to help connect producers with other parts of tree crops (especially cocoa) supply chain. In Cameroon, the farmers' organization, FORCE with a membership of 50 000 cocoa producers, joined and led GB&SS activities. A Farmer Field School model was developed to engage farmers in production and marketing activities. A pilot production information system was established involving 900 farmers. And producers were organized to do collective marketing of their produce that generated a 15–20% increase in producer prices for those participating. In Côte d'Ivoire, activities were initiated with two cooperatives, SCABO and Aleh-Ahun (Alepe). A model information system to support management of the cooperatives was developed and tested in the cooperatives. A model and approach for improving product quality was established, and training completed. In Guinea, the project covers several thousand farmers in two great basins of cashew production in the Northwest (Boké basin) and the Center-East (Mandiana basin).

As producers become more familiar with their associations, buyers start to trust in them. However access to credit and finance must be more focused on the activities and the development of proximity rural financial services. Informal sources of credit are too costly for the smallholders. They want credit that is available on acceptable terms and when they need it. Community-based credit programs with farmers actively participating in the making of lending decisions are successful in various countries. The World Bank has considerable experience with micro-enterprise finance and its evaluations show that this form of borrowing is particularly beneficial for poor women.

Problems identified with communication are important for extension elements and an effort to improve major roads and technological communication must be made (farmer isolation is compounded by a lack of communication). The activity package must be more intensified in cashew farmers where the lack of associations seems more evident.

Research and technology transfer

The aims of research and technology transfer are to increase the productivity and sustainability of the tree crop smallholders and that of the natural resource base of which they depend for their livelihoods. Links between technology transfer, sustainability, prices, and improved well being should be studied in greater depth in the program activities to find out the real impact of the technology changes. In any case, advances have been made in *in vitro* activities and in agronomic best practices.

Indicators have shown that a number of technological mechanisms in place lack funds according to the constraints in activities. Meetings held during year one show a high level of institutional collaborations and multi-institutional consultations (for example, the IPM Workshop in Cotonou, November 2001)

Technology transfer is an appropriate way to:

- Increase productivity levels to the extent where the current 'sustainable poverty' is overcome
- Move producers into upper levels, for example resource-poor producers to subsistence agriculture, smallholders to more competitive agriculture, etc.
- Choose a product with both high demand and high elasticity price, such as organic products.

The challenge appears to be the development of options for highly competitive product development initiatives in rural areas. Such product differentiation should enable farmers to better compete in selected market niches. Organic products appear as one viable solution for West Africa's smallholders as it is in other parts of the world with shaded-coffee.¹ Technology transfer activities can be geared to address organic production of cocoa as has been done in Ecuador. Little or no use of pesticides, and increasing nutrient cycling in their fields using organic fertilizers, can be proposed to smallholders.

Issues and needs that have emerged during the first year include: a) the need for improved communication among the research partners, b) the need for technical packages to be formulated (articulated) that can be extended through the GB&SS community groups, c) the need for stronger linkages between the focus community groups and the research groups, and d) the need to place a priority on the relative importance and potential impact of technical interventions that are or can be developed by the research community.

Market and information systems

This has profited from several interesting partners who have offered a series of papers ("MISD activity report", "Tree crops information and quality management center" by P. Sigley; "Quality management system pilot" by S. Hogsbro; "West Africa land information system" by E. Wood) to improve access markets and the efficiency of the tree crops sector. The United States Geological Survey is providing a new information system to achieve the objectives in this area. Transparency in the market and information about demands, price, trends and supply chain will play a basic part in the process of improving the smallholders' income and economy development. However, more emphasis should be placed on urban internal demands as a way to diversify and limit the risks of the volatile international market.

Issues emerging from the first year include:

- The need to integrate market and information systems activities with GB&SS efforts.
- The need to collect and synthesize the information that has been generated during the first year of operation, and make it available to the whole STCP coalition. This might include things such as mapping and graphic presentation of various characteristics of tree crop systems and ecologies, the amount of inputs used,

¹The Economist. 24 August 2002. "Lovin' cups" pp 36.

characterization of types of cocoa produced by linking with the breeding and germplasm characterization activities, tree age (distribution) in different systems, characterization of environmental services in various systems, characterization of types of cashew production systems, mapping of STCP potential pilot project areas, characterization of the type of producer organizations.

- The need to assist national networks with connectivity and training on new electronically based information system tools, - Africalink may be able to assist with this, and it should be coordinated with USGS to determine what types of information the national networks can be set up to provide and handle through the info systems,
- The need for trade information systems support services to be provided at a regional level, and e) the need to complete and circulate the STCP newsletter on a regular basis.

Policy change and implementation

Policies must be found to improve the well-being of farmers and sustainable systems, avoiding persistent high levels of rural poverty and simultaneously avoiding rural population escaping poverty by migrating to the cities.

In the first year, several studies were completed, including an examination of marketing system options for promoting the preservation of product identity, systems; baseline studies were completed or are now underway to provide quality data on the current circumstances of tree crop; analysis of the profitability of alternative technology packages were examined; and child labor studies were initiated. Further, a framework and process to develop indicators of sustainability for tree crop systems in West Africa was designed. And, a position paper on the environmental goods and services of tree crop systems was commissioned. In the next year, increased attention will be given to putting in place the analytical framework to assess the impact of alternative interventions that will be tested in the pilot projects. Analysis and studies on the labor markets and dynamics of tree crop systems will be completed. And, detailed analysis of baseline survey data to examine causal linkages between household and producer level behavior in various policy and trade systems will be examined.

Policy needs to address also issues such as how to influence governments for the *implementation of interventions in the tree crop sector*. The child labor component will require strong governmental support. Three aspects should be considered: (1) how does STCP create awareness of both, the value of research, and how policy can improve the impact of interventions; (2) STCP has to develop strong linkages with policy makers in all participating countries. STCP should not be perceived as implementing a “top-down approach” but rather as a participatory program at all stages of planning and implementation; and (3) STCP should make use of all information and communications technology to develop linkages with policy makers as well as with civil society.

Policy needs to be focused on child labor issues in cocoa systems. Efforts have been made by special working groups to elucidate the current situation of labor practices through credible surveys. STCP will be used as a framework to conduct additional studies and consultations in West Africa. The initial studies will look at developing the

database of knowledge required to design future substantive activities targeted at the community level by early 2002. Perhaps the single most important outcome of these research efforts will be to put into place new methods of preservation of product identity, thereby providing a system to document key aspects of cocoa production, harvesting and handling, including labor practices on the farms.¹

Evidence from numerous countries shows that focusing policies on the needs and empowerment of women is one of the keys to human development and achieving agricultural growth. Increased participation of women and their improved status relative to men and improvements in women's education was found to account for almost 45% of the total reduction in child malnutrition during the period between 1970 and 1985. Women improved status has been regarded as a key factor to increase food security.² No doubt STCP should aim to influence policy in this direction.

The papers of Abbot and Masters are important contributions to the assessment of the impact of the whole program. An Impact Assessment Framework for Cocoa Markets and Pilot (or Regional) Projects has been elaborated, market failures have been identified and the degree to which interventions remedy them has been measured.

The intensive collaboration was one of the most valued and greatest strengths in year one implementation. Strong linkages have been developed within countries by the creation of NNs. In addition, linkages between countries have produced effective technology dissemination activities such as in vitro multiplication.

STCP has been able to bring together institutions from the north to conduct research activities and/or development activities in close collaboration with NARS. The work done in Côte d'Ivoire by SOCODEVI provides a clear example of effective North–South partnerships. Additionally, non-traditional North–North (industry), and North–South (industry/smallholder and public/private links) coalitions have been made possible using STCP as a framework. The child labor issues have increased the contacts with other partners such as UNICEF, ILO and West Africa NGOs. The numbers of targeted players who can contribute to increased prices and decreased costs has grown and could be used as an indicator.

¹STCP document: Cocoa and child labour practices, action plan. Washington DC, November 2001.

²P. Pinstrip-Andersen, R. Pandya-Lorch, and M.W. Rosegrant. 1999. World food prospects: critical issues for the early twenty-first century. IFPRI.

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